

A Database Publication

electron

Vol. 7 No. 2 November 1989 £1.25

user

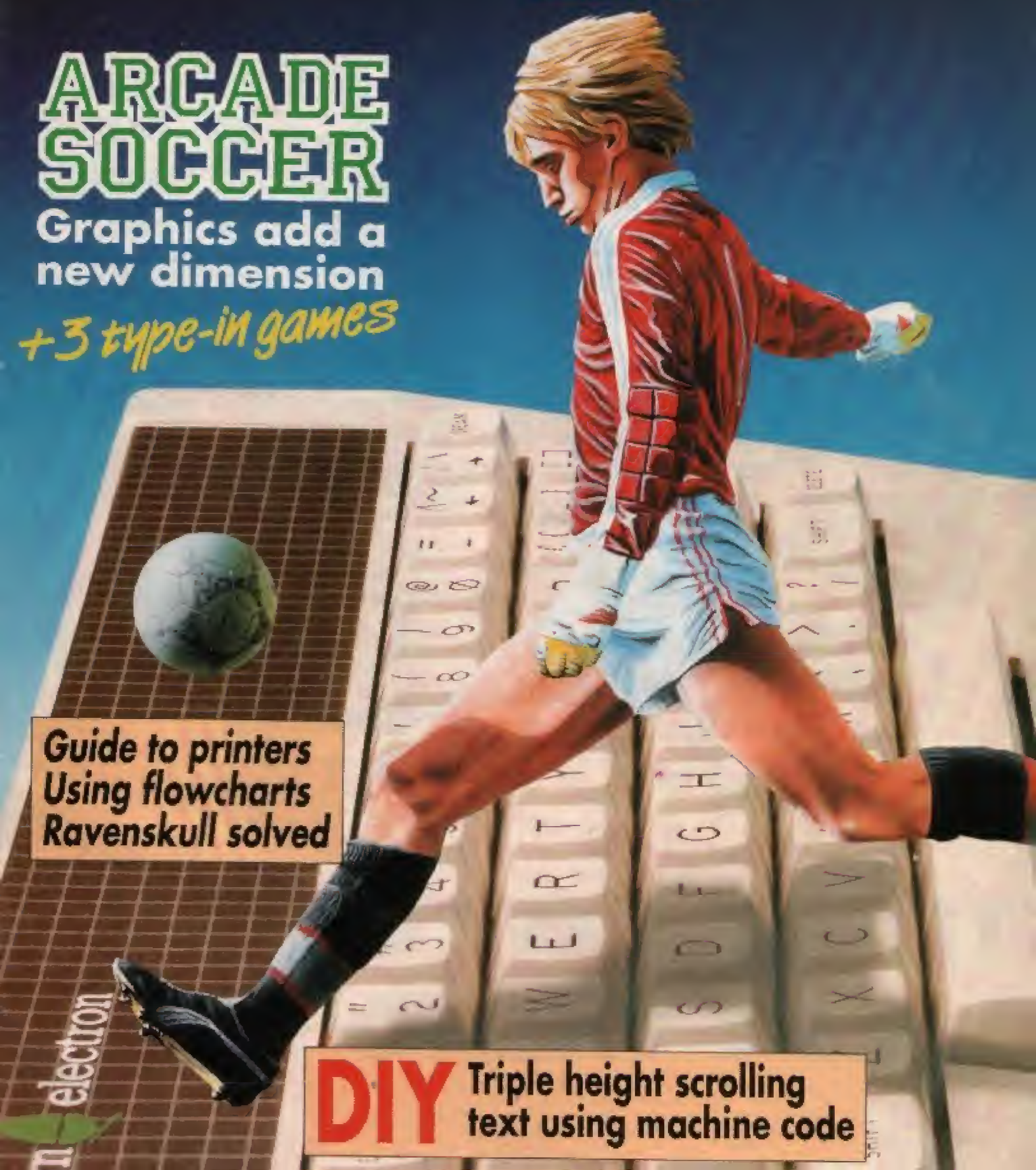
ARCADE SOCCER

Graphics add a
new dimension

+ 3 type-in games

Guide to printers
Using flowcharts
Ravenskull solved

DIY Triple height scrolling
text using machine code



n. electron

**WHEN YOU KNOW
WHAT YOU WANT...**

**COMPI
SHOPPI
SHOW**

NOVEMBER 24 - 26, ALEXANDRA

UTTER PEER 89 PALACE



**...AND YOU WANT
A GREAT DEAL!**

COMPUTER SHOPPER SHOW '89



NOVEMBER 24 - 26, ALEXANDRA PALACE

The **Computer Shopper Show** exists for one purpose – and one purpose only. For you to get a great deal on the hardware, software and peripherals you want to buy. It is, quite simply the biggest display of computing bargains under one roof – ever!

We have a whole host of special features to help you decide exactly what equipment you need. And with over 100 exhibitors committed to giving you the very best value, we've made it easy for you to be sure of getting the best buys.

We've even arranged on-site credit facilities to make

sure you don't miss out on any of the special deals that will be available **ONLY** at the **Computer Shopper Show**.

On anything to do with the PC (including Amstrad or any IBM clone), Amiga, Atari ST, Sinclair, Commodore or Acorn/BBC – you will save an absolute fortune at the **Computer Shopper Show**.

Cut out the voucher and present it at the entrance to the Show. It's worth 50p off every ticket you buy or four pounds off a family ticket. Put the **Computer Shopper Show** in your diary right now. There's a great deal waiting for you!

**Alexandra Palace,
Wood Green, London N22**

10am - 6pm Friday, November 24th 10am - 6pm Saturday, November 25th
10am - 4pm Sunday, November 26th

COMPUTER
SHOPPER
SHOW '89
NOVEMBER 24 - 26, ALEXANDRA PALACE

COMPUTER
SHOPPER
SHOW '89
NOVEMBER 24 - 26, ALEXANDRA PALACE

COMPUTER
SHOPPER
SHOW '89
NOVEMBER 24 - 26, ALEXANDRA PALACE

COMPUTER
SHOPPER
SHOW '89
NOVEMBER 24 - 26, ALEXANDRA PALACE

COMPUTER
SHOPPER
SHOW '89
NOVEMBER 24 - 26, ALEXANDRA PALACE

50p OFF

This voucher is worth 50p per person off the price of admission to the Computer Shopper Show 1989. It is, alternatively, worth £4 off a family ticket.

Only one discount per person is allowable.
Photocopies are not valid



CONTENTS

Cover Story

14 Arcade Corner

Grab your boots and kit ready to battle on the pitch in the World Cup. We review the first Electron football simulation to feature arcade quality graphics.

6 News

All the latest developments in the world of the Electron. Plus the Gallup chart.

9 Storker

Type in and play this superb multi-level sideways scrolling arcade game - one of the best we've published.

17 Printer test

A solid Citizen is put through its paces and comes up trumps.

18 Pendragon

More hints and tips for adventurers, plus a map to Castle Frankenstein.

21 Shopper

Don't let the Christmas shopping crowds get you down - sit back and relax with this computerised simulation.

26 Dollar deals

The stockmarket is transformed into a computer game in this type-in listing. Can you crash the dollar?

27 Scroller

Type a message and watch it smoothly scroll in triple-height across the screen.

29 Programming

Francis Botto discusses the pros and cons of flowcharting for programmers.

31 Octavia

Find out what it's like to be an octopus in this watery game of life beneath the waves.

36 Housecall

We visit Superior Software and report on one of the most prolific producers of Electron games software.

39 In Action

This complete survey of the printer market will enable you to choose one best suited for your purpose.

41 Micro Messages

A selection of the many informative and interesting letters you have been sending us over the past few weeks.

Published by
Database
Publications Ltd
Europa House,
Adlington Park, Adlington,
Macclesfield SK10 4NP.

Editorial, Admin, Advertising:
Tel: 0625 878868
FAX: 0625 879966
Telex: 94081191
MicroLink: MAG001
Prestel: 614568383

Subscriptions:
051-357 2961

ABC

22,033 in June 1985

Managing Editor
Derek Moskin

Features Editor
Roland Waddilove

Production Editor
Peter Glover

Reviews coordinator
Pam Turnbull

Promotions Editor
Christopher Payne

Advertising Sales
John Snowden
Peter Babbage

News trade distribution:
Diamond Europress Sales & Distribution, Unit 1, Burgess Road, Ivyhouse Lane, Hastings, East Sussex TN35 4NR. Tel: 0424 430422.

Printed by Carlisle Web Offset

Electron User is an independent publication. Adcom Computers Ltd are not responsible for any of the articles in this issue or for any of the opinions expressed.

Electron User welcomes program listings and articles for publication. Material should be typed or computer printed, and preferably double spaced. Program listings should be accompanied by cassette, tape or disc. Please enclose a stamped, self-addressed envelope, otherwise the return of material cannot be guaranteed. Contributions accepted for publication will be on an all-rights basis.

ISSN 0952-5057

© 1989 Database Publications Ltd. No material may be reproduced in whole or in part without written permission. While every care is taken, the publishers cannot be held legally responsible for any errors in articles or listings.

Database Publications is a
division of Europress Ltd.

**Back to
school**

10 educational games for
the Electron for just
£5.95

Order on Page 46

Add-ons boost for Electron

ELECTRONICS engineer John Wike has produced two new add-ons to increase the power and BBC compatibility of the Electron through his company Jafa Systems (0222 887203).

Designed to fill a two year gap in the market, his RS423 cartridge plugs into the Plus 1 slot and is driven by the software in the Plus 1. The connector is similar to that in the BBC Micro so compatibility with serial peripherals such as modems and printers is assured.

The cartridge also contains a 28 pin socket to take 8k or 16k eproms or a 32K ram configured as two side-ways slots. The ram is protected against rom software which tries to corrupt itself, such as View.

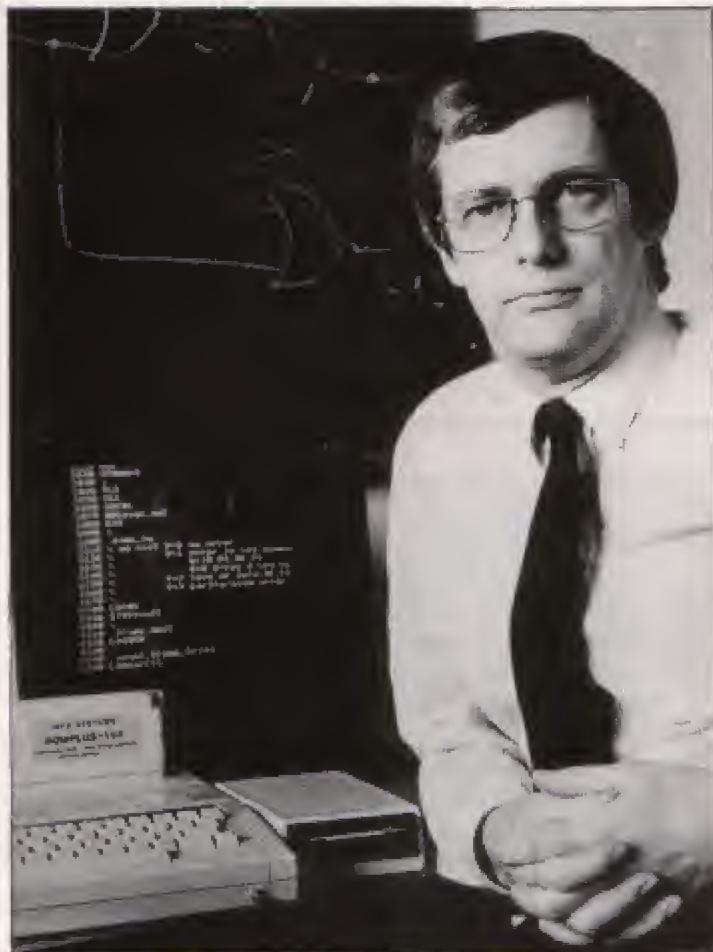
The protection can be switched out to allow side-ways ram based software such as Pres ADFS E00 to be used.

Opening up wider possibilities for Electron users wanting to get into comms, the board costs £29.95 uncased. A case is available for £5 and a 32k ram device costs £20.

Due soon from Jafa is a Mode 7 Mark 2 unit which has been upgraded to be cheaper and more compact than its original Mode 7 adaptor, making many more BBC programs available to Electron users.

Although it retains the display chip used in the BBC Micro to give rounded teletext style characters, it dispenses with the scanning circuitry, giving a much smaller board which fits into the Electron above the ULA.

Scanning is performed by the ULA set in Mode 4 in a similar way to the simulator using Mode 2. This increases speed and uses much less memory than the simulator. Once again, the memory used is in shadow ram if the Slogger Master Ram board is used giving HiMEM



John Wike... new add-ons

at 87C00 with that board.

A rom expansion system is needed to hold the operating system eprom which also contains Prestel terminal software and a demonstration of the screen editor/carousel program which is available separately.

Costing £49, the unit is designed to be easily soldered in place, but a fitting service will be available for £10. Alternatively, a kit including board, eprom and instructions will cost £25. The Mode 7 simulator package is still available.

A share in Wordpower

FIVE years after its release, word processing package for the Acorn range Wordpower has been made available as shareware by Ian Copestake Software (051-648 6287).

For £5 you receive a full working copy of Wordpower complete with documentation. Those who like the program can become registered users by paying the rest of the purchase price. Anyone who is not convinced can keep the package anyway or give it to someone else to try.

If the goods are returned in perfect condition within two months, the £5 is refunded, less postage costs.

"Now everyone can test our claim that Wordpower is the best in its class", said Ian Copestake. "While Wordpower shareware can be obtained almost free, it is still protected by copyright laws. Those who become satisfied users are trusted to register and obtain any site licence which may be required. Failure to do so would just reduce the chance of other software being released in this way".

Anyone requesting the shareware is asked to send details of their computer. Ian Copestake Software is based at 10 Frost Drive, Wirral, Merseyside, L61 4XL.

A super Sam from Superior

SUPERIOR Software (0532 459453) is poised to release what partner Steve Hanson believes could be the best Sam yet. Play it Again Sam 11 is certainly an impressive compilation and is aimed at a late October, early November release. It leads off with the ever popular Barbarian.

In November, *Electron User* gave the second title, Pipeline, 10 out of 10 in every review category. It was described as "a masterpiece of brain twisting entertainment" containing the best of both Repton and Ravenskull.

With 133 screens, third title Baron is a massive arcade adventure from new writer Angelo Sparacino. The

Superior men were so impressed by its scope that they were tempted to a single, full-price release before opting for compilation.

The line-up for this latest Sam offering is completed with the evergreen Acornsoft favourite Monsters and the compilation will sell for the usual Electron price of £9.95.

Also due from Superior at

the end of October is full-price release Ricochet. A Ravenskull type game, it is a huge arcade adventure with four levels and 100 screens on each. The hero is a bouncing ball which jumps according to how much it is depressed. Aggravating until you get the hang of it, but addictive when you do. It will sell for £9.95.

Sharp look for monitors

A REAL space-age anti-glare VDU screen has been launched by Data Sound (01-883 6421).

The Olympus Tipo is made from glass specially

designed for the space shuttle programme. Fixed on to the monitor with adhesive material it is designed to give a sharper image and costs £89.

SOFTWARE

Bargains

To operate a joystick from the Electron, you will require an interface of some sort. We supply a single unit Commander 3 interface, which will take most 'Atari-Type' joysticks, is with a Spin 'D' connecting plug. The PLUS 1 interface as well as having 2 ROM cartridge slots, & printer port, also has in-built, an analogue joystick interface, compatible only with joysticks with a 15 pin 'D' connecting plug.

JOYSTICKS FOR COMMANDER 3 INTERFACE

- Commander 3 Interface & Utility software **£14.95**
Potentiometer:
VOLTMACE 35 SINGLE - "Hand-held" "Can be used as either left or right handed" **£12.95**
Digitest:
CHEETAH 125 - "8 Directional control" "self-calibrating" "2 fire buttons on base, 2 on control handle & Autofire" **£9.95**
QUICKSHOT I - "Contour grip design" "1 fire button on base and 1 on control handle" **£4.95**
QUICKSHOT II - "Trigger fire button, top fire button and Autofire" "Ultra-ergonomic hand grip" "Suction cups" **£9.95**
QUICKSHOT II TURBO - "Improved sensitivity and durability" "2 fire buttons, shoot with thumb or 'trigger' finger" "New ultra-ergonomic hand grip" "Suction cups" ... **THE KING OF JOYSTICKS!** **£13.95**

Software Bargains ever-popular combined offer of the Commander 3

INTERFACE & QUICKSHOT II TURBO ... for only **£24.95**
15 MILLION QUICKSHOTS SOLD WORLDWIDE TO DATE!

JOYSTICKS FOR PLUS 1 INTERFACE

- Potentiometer:**
VOLTMACE 35 SINGLE - "Can be used as either left or right handed" "Light spring action" **£13.95**
VOLTMACE 38 TWINS - "2 joysticks wired to one plug" "Light spring action" "L or R handed" **£19.95**
Digitest:
ELITE ZIPSTICK - "8 Directional control" "self-calibrating" "1 fire button on base" "Strong" **£10.95**
COMPETITION PRO - "Arcade quality micro switches" "2 fire buttons on base" "Strong" **£19.95**
HARRIER - "1 fire button on control handle" "Rising push bar" "Suction cups" **£4.95**

COMPILATIONS

TITLE	F	RRP	SALE
ACORN SOFTWARE HITS 1 (Magic Mushrooms, Maze, Planetoid, Monster)	C	9.95	4.95
ACORN SOFTWARE HITS 2 (Starship Command, Arcadians, Snooker, Metacore)	C	9.95	4.95
MICRO POWER MAGIC 1 (Stock Car, Felix Evil Weevils, Esc, Moonbase, Swamp, Chess, Bandits at 3, Galactic Commander, Adventure, Cybarton Mission, European Knowledge)	C	7.95	5.75
MICRO POWER MAGIC 2 (Bumble Bee, Gauntlet, Rubble Trouble, The Mine, Frenzy, Felix Fruit, Danger UXB, Swoop, Posttron, Killer Gorilla)	C	7.95	5.75
PLAY IT AGAIN SAM (Cheetah, Thrust, Strykers Run, Ravenskull)	C	9.95	6.95
PLAY IT AGAIN SAM 2 (Repton 3, Crazy Rider, Galeforce, Codename Droid)	C	9.95	6.95
PLAY IT AGAIN SAM 3 (Commando, Palace of Magic, K. Gorilla, K. Gorilla 2)	C	9.95	6.95
PLAY IT AGAIN SAM 4 (Felix, Spellbinder, Cosmo, Camouflage, Guardian)	C	9.95	6.95
PLAY IT AGAIN SAM 5 (Imogen, Bug Blaster, Moonrider, Edair)	C	9.95	6.95
PLAY IT AGAIN SAM 6 (Galeforce 2, Hunchback, Hopper, Video's Revenge)	C	9.95	6.95
PLAY IT AGAIN SAM 7 (Firetrack, Snapper, Bone Cruncher, Ghoul)	C	9.95	6.95
PLAY IT AGAIN SAM 8 (Winter Olympiad '88, Quest, Around the World, Mr Wiz)	C	9.95	6.95
PLAY IT AGAIN SAM 9 (Camelot, Steve Davis Snooker, Spycat, Life of Repton)	C	9.95	6.95
PLAY IT AGAIN SAM 10 (Zings, Owt, 3d Darts, Repton Thru Time)	C	9.95	6.95
PLUS 3 GAMES (Planetoid, Firebug, Maze)	D	9.95	4.95
SUPERIOR COLLECTION 3 (Synchron, Repton, Repton 2, Karate Combat, Deathstar, Mr Wiz, Smash & Grab, Overdrive)	C	9.95	6.95

RECENT RELEASES AND SPORT

TITLE	RRP	SALE
Barbarian 2	9.95	6.95
Ballistic	9.95	7.95
Exile	12.95	8.95
Pipeline	9.95	6.95
Repton Infinity	12.95	9.95
Repton Thru Time	6.95	5.95
Tank Attack	12.99	8.95
Predator	9.95	7.95
The Last Ninja	9.95	6.95
3D Pool	9.99	6.95
Commonwealth Games	7.95	6.25
G. Gooch Test Cricket	9.95	6.95
Ian Botham Cricket	7.95	6.95
Superior Soccer	9.95	7.95
Winter Olympiad '88	9.95	6.95
Winter Olympics	6.95	5.25

MINI OFFICE

RRP £5.95 OFFER £4.75

WORD PROCESSOR Ideal for writing letters & reports. There is a constant display of both time & word count, plus a words-per-minute display to encourage the budding typist! A unique feature is the double-justified option in both edit & print mode - perfect for young children & people with poor vision.

DATABASE You use this for storing information, just like an office filing cabinet. Facts you have entered can be quickly retrieved by just keying in a word or part of a word. They can be sorted, replaced, saved for future use or printed out.

SPREADSHEET Enables you to use your micro for home accounts or pocket money records. It creates a display of numbers in rows & columns. Continuous updating is possible & a changed figure can be instantly reflected throughout the rest of the spreadsheet. Your results can be saved, to be used for future updates, or can be fed into its associated program.

GRAPHICS Part of the spreadsheet section, it lets you draw bar charts, pie charts & histograms to give a graphic presentation of your statistics. Helps to give life & colour to the dullest figures!

school 2

RRP £9.95 OFFER PRICE ONLY £7.95 (PER AGE RANGE)

UNDER 6 YEARS includes:
 • Snake Ship: Colourful shape recognition
 • Find the Mole: Experiment with number sums
 • Teddy Count: Total introduction to numbers
 • With a Letter: Creative fun at the keyboard
 • Colour Train: Play of spelling colours
 • Pick a Letter: Word building made easy
 • Spell a Word: Enjoy naming the pictures
 • Tidy Bears Picnic: Move around a maze

6-8 YEARS includes:
 • Number Train: Calculations made enjoyable
 • Shopping: Which shop for which product?
 • Maths Maze: Fun improving arithmetic skills
 • Treasure Hunt: Introduction to coordinates
 • Source: Get to grips with angles
 • Pickling: Discover interesting shapes
 • Calendar: Word building challenge
 • Number jump: Have fun practising tables

OVER 8 YEARS includes:
 • Build a Bridge: Shape-fitting challenge
 • Passage of Guardians: Enigma programs
 • Unicorn: First steps in problem solving
 • Logic Gates: Mapping made easy
 • Scavenger: An introduction to travel
 • Code Boxes: Discover binary arithmetic
 • Mystery machine: Have fun breaking codes
 • Escape: A final check on progress

ELECTRON MAINS ADAPTOR (19V)

ONLY £9.95!

AERIAL LEAD
£2.65

CASS LEAD
 (7 Din to 3 Jacks ONLY)
£2.65

DUST COVER ONLY
£3.95

10 BLANK CASSETTES FOR ONLY £1.00
 (These are program cassettes which have been returned to us as faulty, but which are suitable for your own re-recording. Available with orders in excess of £5.00 only).

PRINTER DRIVER GENERATOR (CASS)

RRP £9.95 ... OFFER £7.95

NEW!

Have you ever wanted to turn your Electron into a word processor, or use applications on ROM cartridge, but feel the PLUS 1 is too expensive?

WE NOW HAVE THE ANSWER

We are offering a **LAST CHANCE** business/education **EXCLUSIVE**... A **NEW ROM** cartridge & Printer Interface board with both **VIEW & VIEWSHEET**, in one package for less than the cost of a standard PLUS1.

BASIC (COMPLETE PCB, 1 Cartridge port, printer port, VIEW & VIEWSHEET) (price per set included) **£29.95**

EXTENDED (Complete PCB, 1 Cartridge port, printer port, VIEW & VIEWSHEET) ... **£34.95**

FULL (2 Cartridge Ports, printer port, VIEW & VIEWSHEET) **£39.95**

If you have not received full details of this product & would like to know more - please call or write to us!

AMAZING OFFER!

Adventure
Bumble Bee
Chess (Acornsoft)
Cybarton Mission
Ele Invaders
Felix Evil Weevils
Felix Fruit
Gauntlet
Galactic Commander
Jet Power Jack
Moonrider

Rubble Trouble
Swoop
Magic Mushrooms
Snapper
Intergalactic Trader
Introductory Chess
Stranded
Strykers Run
Codename: Droid
Allen Dropout
Galeforce

Crazy Rider
Repton Thru Time
Bandits At 3
Chess (Micro Power)
Crosler
Danger UXB
Escape Moonbase
Felix Factory
Frenzy
Overdrive
Ghoul

Killer Gorilla
Posttron
Stock Car
The Mine
Boxer
Gyroscope
Draw
Invaders
Centbug
Chess (Superior)
Eldor

Palace of Magic

Educational
Where?
Workshop
English
Biology
Linkword Italian
Mastermind Quiz

World of Geography
Maths O Level 2
Desk Diary
Talkback
Know your Personality
Linkword Spanish
Turtle Graphics
Outmaster (Additional Q's for Mastermind)

Or £1.95
Each

ANY 10 FOR ONLY £9.95!!

Please give 2 additional choices, in case of non-availability

- * Please add 95p P&P (Overseas £4.50).
- * All prices include VAT
- * Goods despatched within 48 hours - subject to availability
- * Out of hours answerphone: 0532 436300



Dept. EUB9, C/O Northwood House,
North Street, Leeds, LS7 2AA.
Telephone: 0532 436300



In order to preserve our low prices and fast service, we can only accept orders having a total value in excess of £4.

We supply a catalogue of our entire stock range per machine type with every order.

Don't miss out on the mass of material that's appeared in *Electron User* over the past few months. Bring yourself up to date with this back issue bundle, packed with games, utilities, features and programming tutorials.

Here's what you'll find in the
April 1989 – September 1989 bundle:

May 1989 issue:

Games: Eliminator. **Utilities:** EZ Type, DFS disc formatter. **Features:** Tournament sorts, Party Cocktail Creator, Landscape Designer, Fractal Generator. **Reviews:** Barbarian II, Circus Games, Superman, Mode 7 Simulator Rom.

June 1989 issue:

Games: Tic Tac Rhymes, Duel. **Features:** ADFS osword calls explained, creating customised tapes, maps to Woodbury End and Palace of Magic. **Utilities:** Disc-based database, new CIRCLE graphics command, Morse Code Tutor. **Reviews:** Holed Out, Tank Attack, Sam 7.

July 1989 issue:

Games: Jet Bike arcade adventure, educational fun with Ladder Adder, Time bomb arcade fun. **Utilities:** Speedy Reader. **Reviews:** Predator, Stormcycle, Sam 8. **Features:** Jafa Systems interview, Disc error codes documented, 10 Liners, Philosophers Quest and Palace of Magic mapped.

August 1989 issue:

Games: Rollerball, Bingo. **Reviews:** Alps, Turtle Worlds, White Magic, Play it Again Sam 9. **Features:** Map of Kayleth, Repton Infinity tips. **Utilities:** Disc Housekeeper, Mode 2 screen compacter, Titration, Chemical Equations.

September 1989 issue:

Game: Snakes. **Reviews:** Keyword, Basic Editor Plus, Ballistix, Sam 10. **Features:** Arcade Corner, Electron history. **Utilities:** Attribute editor, magazine database.

October 1989 issue:

Game: Spinning Frustration, Jet Bike, Robokill. **Reviews:** Rodeo Games, Hi Q Quiz, Spooksville, Rombard. **Features:** Exile solution, Electron carrying case. **Utilities:** Elkpaint, Disc Menu.

electron

user

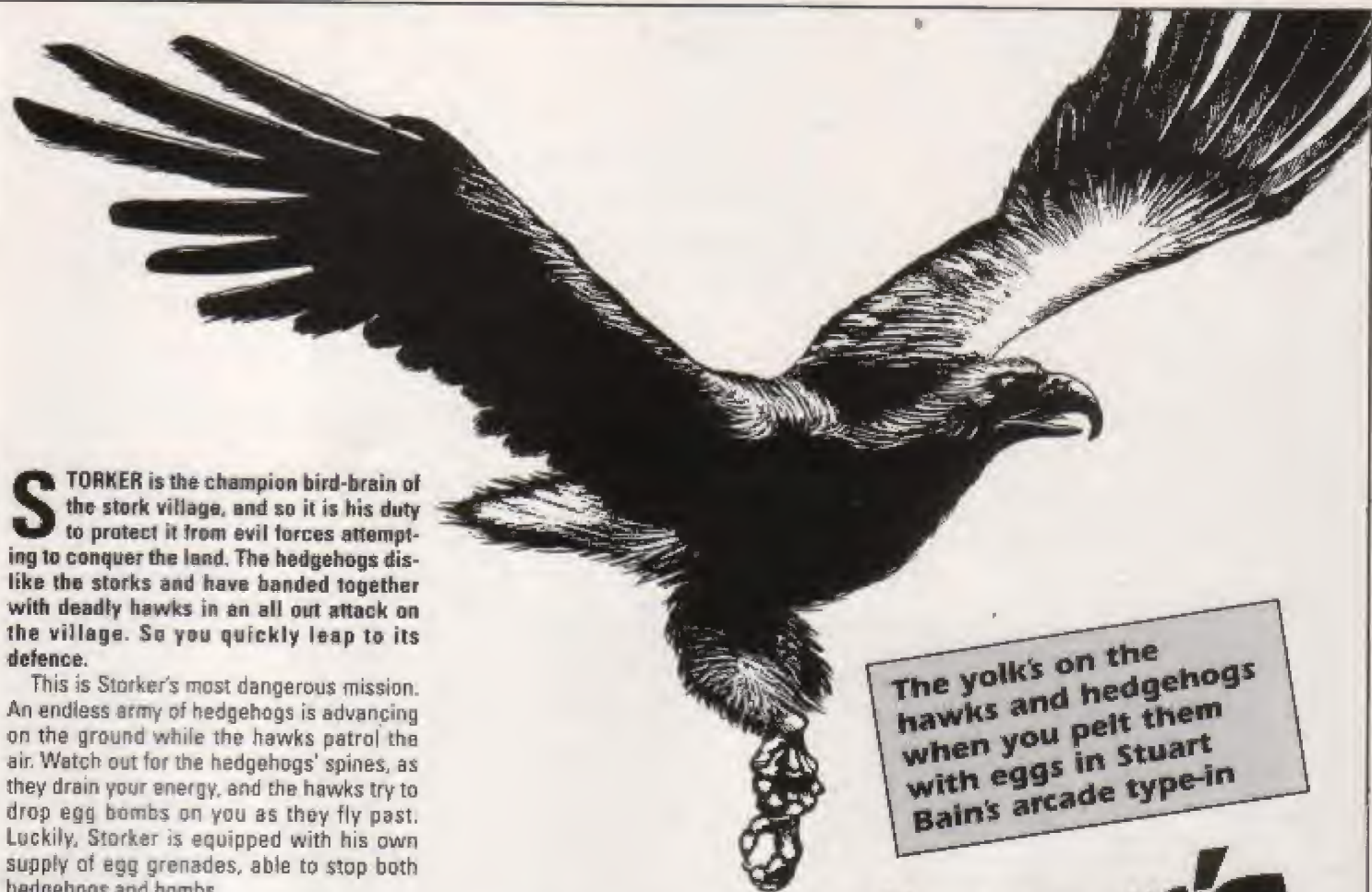
BACK ISSUE BUNDLE

**Everything you
ever wanted to
know about your
Electron but were
afraid to ask is in
these back
issues of
Electron
User**

Only £1.50
each or
£7.99
for all six



TO ORDER PLEASE USE THE FORM ON PAGE 45



STORKER is the champion bird-brain of the stork village, and so it is his duty to protect it from evil forces attempting to conquer the land. The hedgehogs dislike the storks and have banded together with deadly hawks in an all out attack on the village. So you quickly leap to its defence.

This is Storker's most dangerous mission. An endless army of hedgehogs is advancing on the ground while the hawks patrol the air. Watch out for the hedgehogs' spines, as they drain your energy, and the hawks try to drop egg bombs on you as they fly past. Luckily, Storker is equipped with his own supply of egg grenades, able to stop both hedgehogs and bombs.

You start the game on the left-hand side of the screen and the hawks and hedgehogs attack from the right. You must dodge the hawk egg-bombs and dispose of the hedgehogs with your own eggy grenades.

To complete each screen, Storker must catch bugs which buzz overhead. The number to eat is shown at the top of the screen. Once Storker has had his fill he must run to the right-hand edge of the screen.

Touching hedgehogs or being hit by bombs weakens him - his strength is shown at the top of the screen. A bonus will be awarded depending on the amount of strength left.

The yolk's on the hawks and hedgehogs when you pelt them with eggs in Stuart Bain's arcade type-in

Storker's run

CONTROLS

Z	Left
X	Right
Return	Jump
Space	Throw grenade

```
10REM Storker's Run
20REM By Stuart Bain
30REM (c) Electron User
40PROCinit:
50ONERRORT1FERR<17MODE6:PRINT:
REPORT:PRINT" at Line ";ERL:OSCLI
"FX21":END
60REPEATMODE4:V0U23,1;0;0;0;0;
19,0,4;0;0:PROCstart
70MODE5:V0U23,1,0;0;0;0;19,1,5
;0;17,2:PROCvar
80REPEATPROCscreen:CALLmainX
90IF?dead=200PROCclear ELSEPROC
Cdead
100UNTIL?dead:PROCover
110MODE4:V0U23,1,0;0;0;0;19,0,4
;0;:PROChigh:UNTIL0
120DEFPROCstart
130AX=0:BX=0:CX=1:*FX210,0
140REPEATIFBXPROCTable ELSEPROC
options
150REPEATTIME=0:REPEATAX=0:IFIN
KEY-99AX=100ELSEIFINKEY-38AX=1ELS
EIFINKEY-17AX=2ELSEIFINKEY-82AX=3
```

```
160UNTILAXORTIME>700
170IFAX=0BX=1-BX:UNTIL1:UNTIL0
180IFAX=1PROCinstr
190IFAX=2CX=0:OSCLI"FX210,1":IF
BX=0PROCdb("on",11,13):PROCdb("of
f",30,13):UNTIL0
200IFAX=3CX=1:OSCLI"FX210,0":IF
BX=0PROCdb("on",11,13):PROCdb("of
f",30,13):UNTIL0
210IFAX=20RAX=3UNTIL0
220UNTIL1:UNTILAX=100
230PROCtune("CCCCCEEGEGEGGIDDD
6","4448844488444874448"):REPEATU
NTILABVAL(-6)=15
240ENDPROC
250DEFPROCoptions
260PROCheader:PROCwindow(3,6,34
,25)
270PROCdb("CONTROLS",13,1):PROC
db("Z - Left.....X - ri
ght",1,4):PROCdb("Space - grenade
....Return - jump",1,7)
280PROCdb("P - pause on.....0
- pause off",1,10):IFC3PROCdb("S
```

```
- sound ON.....& - sound off",
1,13)ELSEPROCdb("S - sound on....
...& - sound OFF",1,13)
290PROCdb("Escape - abort",10,1
6)
300PROCdb("Press 'I' for instru
ctions",4,19):PROCdb("Press Space
to start",7,22)
310ENDPROC
320DEFPROCinstr
330PROCheader:PROCwindow(1,8,38
,16):PRINTTAB(11,1)"The Story so
far"TAB(11,2)"-----"
340PROCsplit("Storker is the ch
ampion chosen by his village, and
he must protect it from the evil
forces attempting to conquer the
land. The dreaded giant hedgehogs
have banded with the deadly hawk
s in an all out attack.")
350PROCspace:PROCheader:PROCwin
dow(1,7,38,17)
```

Turn to Page 10 ►

◀ From Page 9

360PROCsplit("Storker has been assigned an egg-stremlly dangerous mission. There is an endless army of hedgehogs advancing whilst the hawk air patrols drop egg-bombs.")

370PROCsplit("However, Storker is equipped with egg-grenades, able to take out both the hedgehogs and the bombs.")

380PROCspace:PROCheader:PROCwindow(1,6,35,19)

390PROCsplit("To clear each screen, Storker must catch the required number of bugs which buzz overhead. Then he must run to the right edge of the screen.")

400PROCsplit("Touching hedgehogs or being hit by bombs weakens Storker. His strength is shown at the top. On completion of a sheet, a bonus will be awarded depending on the strength left.")

410PROCspace:ENDPROC

420DEFFPROCvar

430SX=0:IX=2:levX=1:sp=244

440COLOUR2:PRINTTAB(0,27)STRING\$(20,CHR\$224)TAB(0,7)STRING\$(20,CHR\$224)

450GCOL0,1:MOVE0,136:VDU5:PRINTSTRING\$(100,CHR\$226):MOVE0,136:GCOL0,2:PRINTSTRING\$(100,CHR\$227)

460\$110="Storker's Run":GCOL0,0:VDU5:MOVE192,96:CALLDoubX:MOVE200,92:CALLDoubX:MOVE192,88:CALLDoubX:MOVE184,92:CALLDoubX:GCOL0,3:MOVE192,92:CALLDoubX:VDU4

470SX=28:YX=1:CALLcalcX:ldata=menX:IX=3:YX=24:CALLprintX

480PRINTTAB(0,1)"SCORE LEV:TAB(6,3)"EAT:TAB(16,2)"=

490ENDPROC

500DEFFPROCscreen

510!gx=0:!ju=0:!hit=0:!timeZ=8285F80:!fx=0

520!add=876D0:!data=menX:IX=3:YX=24:CALLprintX:WX=0:ZX=24

530COLOUR1:VDU31,0,5,225,225,225:COLOUR2:PRINT:STRING\$(17,CHR\$225):COLOUR3

540!bon=0:!hx=8131C24:RESTORE630:FORIX=DT0(levX-1)MOD10:READAS:NEXT

550!htot=VALMIDS(AS,1,1)-1:!bto=VALMIDS(AS,2,1)

560FX=VALMIDS(AS,3,1):!tdec=VALMIDS(AS,4)

570FORIX=DT0!htot:7tx=hx?IX:CALLhogr:NEXT

580!haw=18:CALLhawpr

590PRINTTAB(10,1):SPC-(levX<10):levXTAB(11,3):FXTAB(18,2):LXTAB(0,3):RIGHTS("0000"+STR\$SX,5)

600PROCdb("READY!",7,16):PROCde(100):PROCdb(1,7,16):GOUN01,-15,80,2

610XX=0:YX=24:!old=menX:3xi=sp

620ENDPROC

630DATA11105,12105,12206,12307,23208,22308,22408,32209,23410,33411

640DEFFPROCclear

650PROCtune("NNNNPPPPPPNNNN", "633763375553338"):PROCde(100)

660!dead=0:If timeX?2=DT0TO68DELSEX=0:YX=3:AX=0:REPEATCALLbonus:AFX21,5

670\$BUND1,-15,150,1:SI=SX+S:Inu=SX:CALLnumB:PROCde(10):UNTIL?d

ead:1dead=0

680CALLC(levX:levX=levX+1:If(levX-1)MOD10=0:sp=sp-2*(7sp<254)

690COLOUR2:PRINTTAB(2,13)"Proceed to level":COLOUR3:PROCdb(STR\$levX,9,15)

700If(levX-1)MOD5=0PROCde(100):PRINTTAB(5,19)"BONUS LIFE":SOUND1,-1,200,4:IX=IX+1:PRINTTAB(18,2):IX

710PROCde(200):CALLClevX

720ENDPROC

730DEFFPROCdead

740FORIX=DT015:YX=YX-1+2*(IXMOD2):CALLbirdX:SOUND0,-15,5-IXMOD2,2:PROCde(10):NEXT

750PROCde(60):PROCtune("HHEIED0","6453556")

760!IX=IX-1:IfIX?dead=0

770PROCde(200):CALLClevX:PROCde(160):ENDPROC

780DEFFPROCover

790FORIX=1TO10:PROCdb(MIDS("GAME OVER",IX,1),4+IX,14):PROCde(25):NEXT

800PROCtune("EEEGffEEde","97397355739")

810PROCde(200):CALLClevX:ENDPROC

820DEFFPROChigh

830!FSX=hsX(4)GOTO910

840IX=-1:REPEATIX=IX+1:UNTILSX>hsX(IX):FORJX=3TO1XSTEP-1:hsX(JX+1)=hsX(JX):hsX(JX+1)=hsX(JX):NEXT:hsX(IX)=SX:hsX(IX)=""

850PROCtable:PROCwindow(6,26,24,4):PROCdb("Please enter your name",1,1):VDU28,5,23,33,7

860*FX21

870AS=""!REPEATIX=GET:IFBX>31ANDBX<127ANDLEN(AS)<10AS=AS+CHR\$BX

880!FBX=127AS=LEFTS(AS,LEN(AS)-1)

890PROCdb(LEFTS(AS+" ",10),19,IX*3+1):UNTILBX=13

900!IX=AS

910PROCtable

920PROCspace:ENDPROC

930DEFFPROCtable

940CALLscr:PROCwindow(8,1,24,4):PROCdb("Storker's famous-five",1,1)

950PROCwindow(5,7,30,16):FORJX=DT04:PROCdb(RIGHTS("0000"+STR\$hsX(JX),5)+"....."+hsX(JX),1,1+JX*3):NEXT

960ENDPROC

970DEFFPROCtune(AS,BX)

980CS=" CcdEeffGfHhIjJkKlMmNnOoPqRrSttuu"

990FORIX=1TOLENAS:SOUND1,4,INSTRIC(S,MIDS(AS,IX,1))*4,VALMIDS(BX,IX,1):SOUND1,0,0,0:NEXT

1000ENDPROC

1010DEFFPROCsplit(AS)REPEATIX=37:REPEATIX=IX-1:UNTILMIDS(AS,IX,1)="" :JX=IX:REPEATIX=IX-1:UNTILMIDS(AS,IX,1)<>" ":PROCcent(LEFTS(AS,IX)):AS=MIDS(AS,JX+1):UNTILLENAS<37:PROCcent(AS):ENDPROC

1020DEFFPROCcent(BX)PRINTTAB(19-LEN(BX)/2,VPOS+1):BX:ENDPROC

1030DEFFPROCwindow(X1,Y1,X2,Y2)VDU28,X1,Y1+VX-1,X2+HX-1,Y1,12

1040MOVEXX*32+4,1019-YX*32:PLOT1,HX*32-12,0:PLOT1,0,-VX*32+12:PLOT1,-HX*32+12,0:PLOT1,0,VX*32-12

1050PLOT0,4,0:PLOT1,0,-VX*32+12:PLOT0,HX*32-20,0:PLOT1,0,VX*32-12

1060ENDPROC

1070DEFFPROCdb(\$110,X1,Y1)CALLdo

ubX:ENDPROC

1080DEFFPROCde(AX):TIME=0:REPEATUNTILTIME>AX:ENDPROC

1090DEFFPROCspace:PROCwindow(13,27,14,4):PROCdb("PRESS SPACE",1,1):REPEATUNTILINKEY=99:ENDPROC

1100DEFFPROCheader:CALLscr:PROCwindow(12,1,16,4):PROCdb("STORKER'S RUN",1,1):ENDPROC

1110DEFFPROCinit

1120VDU23,224,0,240,255,255,255,255,0,0,23,225,102,102,102,102,102,102,102

1130VDU23,226,85,170,85,170,85,170,85,170,23,227,170,85,170,85,170,85,170

1140ENVELOPE1,1,0,0,5,0,5,20,126,0,0,-126,126,126:ENVELOPE2,1,0,10,-10,0,10,10,126,0,0,-126,126,126

1150ENVELOPE3,2,-3,0,0,50,0,0,126,0,0,-126,126,126:ENVELOPE4,2,1,-1,0,1,1,0,126,0,0,-126,126,126

1160IMM21790,hsX(5),h15(5):FORIX=DT04:h15(IX)="Bainy Soft":hX(IX)=(5-IX)*1000:NEXT

1170RESTORE2240:menX=89D0:FORIX=DT04D7:READmenX:IX:NEXT:eggX=menX+285:hdX=menX+304:bdX=menX+368:flyX=menX+392

1180add=870:data=872:old=874:gx=876:gy=877:gd=878:gre=879

1190ju=878:go=878:dir=878:anim=878:hit=878:IFINKEY=256+11=829F:ELSEti=82A0

1200dead=87F:got=880:(last=881:row=882:col=883:hx=884:htot=887:hco=888:tx=889:haw=88A:bx=88B:by=88E:bon=891:btot=894:bco=895

1210timeX=86D:tco=863:tdec=864:fx=865:fon=866:fco=867:nu=868:sp=86C

1220tab=8150:FORJX=DT027:!(tab+JX*2)=858D+8140*JX:NEXT

1230FORIX=DT02STEP2:PX=RX

1240COPIX

1250.calcLDA#0:STAadd+1:STXadd:LDX#3:ca2:ASLadd:ROLadd+1:DEX:BNca2:TYA:ASLA:TAY:LDAadd:ADCtab,Y:STAadd:LDAadd+1:ADCtab+1,Y:STAadd+1:RTS

1260.printXSTXrow:STYcol:LDX#0

1270.m2:LDY#0:.p3:LDA(data),Y:EOR(addy),Y:STA(addy),Y

1280INX:CPYcol:BNep3:CLC:LDAadd:ADC#840:STAadd:LDAadd+1:ADC#1:STAadd+1

1290CLC:LDAdata:ADCcol:STAdata:LDAdata+1:ADC#0:STAdata+1

1300INX:CPYrow:BNep2:LDXrow:LDYcol:RTS

1310.birdXLOAld:STAdata:LOAld+1:STAdata+1:LDX#45C:LDY#46B:JSRcalC:LDX#3:LDY#24:JSRprintX

1320LDAmenXMOD256:STAdata:LDAmenXMOD256:STAdata+1:LDAdir:BEQnpl:CLC:LDAdata:ADC#144:STAdata:LDAdata+1:ADC#0:STAdata+1

1330.npl:LDAanlw:EOR#72:STAanlw:CLC:ADCdata:STAdata:LDAdata+1:ADC#0:STAdata+1

1340LDAdata:STAold:LDAdata+1:STAold+1:LDX#46D:LDY#464:STX#45C:STY#46B:JSRcalC:LDX#3:LDY#24:JSRprintX:RTS

1350.grenXLOAgre:CMP#200:BCsexplo:LOAgre:BNEmg:LOAdir:BEQgrer

1360LDA#46D:STAgx:CLC:LDA#464:ADC#1:STAgx:LDA#1:STAgd:JMPmp1

1370.grer:LDA#46D:CLC:ADC#2:STAgx:LDA#464:ADC#1:STAgx:LDA#0:STAgd

◀ From Page 11

```

2050.dec: EQUW1000D: EQUW1000: EQUW
100: EQUW10: EQUW1
2060.count%INCtco: LDA tco: CMP tdec
: BEQ bon1: RTS: .bon1: LDA#0: STA tco
2070.bonus: SEC: LDA time%: SBC#8: ST
Atime%: LDA time%+1: SBC#0: STA time%+
1
2080.LDA#0: LDY#7: .bon2: STA (time%)
,Y: DEY: BPL bon2
2090.ECtine%+2: LDA time%+2: CMP#6:
BCC bon4: LDY#peep: M0256: LDY#peep
DIV256: JSR scu
2100.bon3: LDA time%+2: BNE bon4: LDA
#1: STA dead: .bon4: RTS
2110.double LDA#0: STA#70: LDA#31: JS
R&PFEE: TXA: JSR&PFEE: TXA: JSR&PFEE:
,d1: LDY#70: LDA#110, X: CMP#13: BEQ#3
: STA#71: INX: STX#70
2120.LDX#71: LDY#0: LDA#10: JSR&FFF
T: LDA#1: LDY#0: ,d2: LDA#71, X: STA#CF
0, Y: INY: STA#CF0, Y: INY: INX: CPX#9: B
NE d2
2130.LDA#254: JSR&FFEE: LDA#8: JSR&F
FEE: LDA#10: JSR&FFEE: LDA#255: JSR&F
FEE: LDA#11: JSR&FFEE: JMP d1, d3: RTS
2140.cLe%LDA#255: STA data: JSR cLpr
: LDA#0: STA data
2150.cLpr: LDY#0: .cL2: LDA#0: STA ad
d: LDA#62: STA add+1: ,cL3: LDA data: S
TA (add), Y: CLC: LDA add: ADC#8: STA add
: LDA add+1: ADC#0: STA add+1
2160.CMP#879: BNE cL3: LDA add: CMP#8C

```

```

0: BNE cL3: INY: CPY#8: BNE cL2: RTS
2170.sc%LDA#17: STA data: LDY#0: .s
cL1: LDA#858: STA add+1: LDA#0: STA add:
.scL2: LDA data: STA (add), Y: CLC: LDA ad
d: ADC#4: STA add: LDA add+1: ADC#0: STA
add+1: CMP#880: BNE scL2: ASL data: INY:
CPY#4: BNE scL1: RTS
2180.peep: EQUW3: EQUW-15: EQUW140:
EQUW1
2190.s1: EQUW1: EQUW1: EQUW100: EQUW
5
2200.s2: EQUW1: EQUW2: EQUW30: EQUW2
2210.s3: EQUW1: EQUW3: EQUW40: EQUW3
2220.s4: EQUW0: EQUW-15: EQUW4: EQUW
3
2230J: NEXT: ENDPROC
2240REM Stork right
2250DATA 0,0,0,0,0,0,0,128,16,48
,48,48,16,16,16,112,128,192,67,19
2,128,0,0,128
2260DATA 208,240,96,48,16,0,0,0,
240,112,224,80,176,224,4,4,128,12
8,128,128,0,0,0,0
2270DATA 0,0,0,0,0,0,0,0,4,8,8
,4,4,4,10,0,0,0,0,0,0,0,0
2280DATA 0,0,0,0,0,0,0,144,16,48
,48,48,16,16,16,48,128,193,66,193
,128,0,0,128
2290DATA 176,208,96,48,16,0,0,1,
176,208,224,240,240,224,12,4,128,
128,128,128,0,0,0,0
2300DATA 2,4,4,2,1,2,0,0,4,4,4,2
,2,9,0,1,0,0,0,0,0,0,8,4
2310REM Stork left

```

```

2320DATA 16,48,44,48,16,0,0,16,1
28,192,192,192,128,128,128,224,0,
0,0,0,0,0,0,16
2330DATA 16,16,16,16,0,0,0,240
,224,112,160,208,112,2,2,176,240,
96,192,128,0,0,0
2340DATA 0,0,0,0,0,0,0,2,2,1,1
,2,2,2,5,0,0,0,0,0,0,0,0
2350DATA 16,56,36,56,16,0,0,16,1
28,192,192,192,128,128,128,192,0,
0,0,0,0,0,0,144
2360DATA 16,16,16,16,0,0,0,208
,176,112,240,240,112,3,2,208,176,
96,192,128,0,0,8
2370DATA 0,0,0,0,0,0,1,2,2,2,2,4
,4,9,0,8,4,2,2,4,8,4,0,0
2380REM Egg
2390DATA 0,0,0,0,102,255,255,102
,68,153,37,128,43,68,23,142
2400REM hog
2410DATA 0,0,0,0,0,0,0,0,0,0,0,0,
0,1,2,5,0,0,0,0,10,5,10,5,0,0,0,
0,8,4,10,5
2420DATA 0,0,17,34,63,63,0,0,10,
141,238,255,221,139,8,12,10,5,10,
255,255,255,0,0,10,5,206,239,174,
6,3,1
2430REM Hawk
2440DATA 0,136,238,255,119,0,0,1
,111,159,102,255,255,9,9,6,0,17,1
19,255,238,0,0,8
2450REM Bug
2460DATA 68,238,238,103,1,1,2,0,
34,119,119,110,8,8,4,0

```

ACORNSOFT TITLES

Talkback	£1.50
Workshop	£1.50
Sphinx Adventure	£1.00
Starship Command	£1.00
Hopper	£1.00
Chess	£1.00
Desk Diary	£1.00
Business Games	£1.00
Boxer	£1.00
Me and My Micro	£1.00
Snapper	£1.00
Complete Cocktail Maker ...	£1.00
Watch Your Weight	£1.00
Linkword Italian	£2.25
Linkword Spanish	£2.25
Turtle Graphics	£2.25
Advanced User Guide	£3.25
Lisp	£1.99
Linkword French	£4.99

EPIC ADVENTURES

Wheel of Fortune	£4.95
Castle Frankenstein	£4.95
Quest of the Holy Grail	£4.95
Kingdom of Klein	£4.95

TETRIS

The highly addictive smash hit from the USSR.

£2.99

FIRST STEPS WITH MR. MEN

Simple and absorbing games (4-8 yrs) for early learners when starting to read

£4.99

HERE AND THERE WITH MR. MEN

These games (4-8 yrs) are designed to teach children about giving directions and plan simple routes.

£4.99

Rick Hanson Trilogy

Three great adventures from Robico

Project Thesius

Myreon

Rick Hanson

Special offer price £9.95

XOR

Ultimate maze challenge. Logical thinking strategy and tactical problem solving are required. No time limit to solve the puzzles

£2.99

ATLANTIS

League Challenge	£2.99
Survivors	£2.99
Panic	£1.99
Cops and Robbers	£1.99
Creepy Cave	£1.99
Pro Golf	£2.99
Frankenstein 2000	£1.99
Golden Figurine	£1.99

SUPERIOR at £1.99 each

Fruit Machine	Percy Penguin
Invaders	Alien Dropout
Draughts	World Geography
Reversi	Centi Bug
Stranded	Overdrive
Mr. Wiz	Tempest
Chess	Death Star
Smash 'n' Grab	Repton I (£2.99)

TOWERHILL COMPUTERS LTD

Unit 7, Acacia Close,
Cherry Court Way Ind. Est.
Leighton Buzzard, Beds.
Tel: Leighton Buzzard (0525) 385329



Watch TV on the move – and SAVE £25!

... with the unique CASIO
Colour Pocket TV

Because of a breakthrough in technology you can now watch your favourite TV programs anytime, anywhere – and in full colour – with the new pocket-sized Colour TV400 which features a revolutionary High Quality Matrix LCD display – giving crisp, bright pictures.

Measuring just 5 x 3 x 1 inches, the TV400 sits snugly in the palm of your hand, or you can use the built-in rest to place it on most surfaces – at just the right angle for optimum viewing. The screen itself measures 2 inches diagonally, giving you plenty of viewing area.

When the TV400 was designed, part of the specification was that it should be useable virtually anywhere. As a consequence it has a built-in signal amplifier which can pick up some far away stations your ordinary TV can't! Plus it has automatic tuning, so at the touch of a button the TV400 scans through the band and quickly locks into all receivable broadcasts.

We have tested the pocket TV in trains, on buses, in cars, indoors and outdoors, and in most cases the picture remained sharp and clear. However, reception could vary depending on obstacles in the way of the signal like large buildings and hills.

Whether for yourself, a member of your family or friend, the TV400 makes an excellent present which will give entertainment and pleasure for many years to come.

Due to our purchasing power we can make the TV400 available to you at the exceptionally low price of just £94.95* – (We have not seen the TV as cheap as this anywhere else – including the High Street stores.)

And remember, you can buy with complete confidence as the TV400 comes with a full one year guarantee for parts and labour (in normal use).

RRP £119.95

OUR PRICE

£94.95*

* Plus £1.50 post and packing

Please note: The TV400 is tuned for UK PAL broadcasts. Therefore we can only accept orders from the UK

Look what it offers:

- | | |
|----------------------------|---|
| ★ 2" HQM LCD colour screen | ★ External aerial socket |
| ★ Internal loudspeaker | ★ Earphone socket |
| ★ Volume control | ★ Automatic tuning |
| ★ Brightness control | ★ External power supply socket |
| ★ Colour control | ★ Takes four standard AA size batteries |
| ★ Extendible aerial | |

TO ORDER PLEASE USE THE ORDER FORM ON PAGE 45

World Cup thriller

Product: Arcade Soccer
Price: £9.95
Supplier: The Fourth Dimension, PO Box 4444,
Sheffield.
Tel: 0742 700661

ONE minute there are no football games for the Electron, then suddenly there's two – or at least one available and one promised. The Fourth Dimension scores first with its Arcade Soccer.

The game's main promotional features are that it is the only graphic football simulation available for the Electron and that up to 24 players are catered for. Thankfully, that doesn't mean 240 fingers and thumbs on the keyboard.

You can play a complete World Cup including 24 teams with computer, or human players controlling some or all them. In one player mode you take on the computer-controlled teams, but with more than one player you may be matched against a human or computer team.

On loading the game you are presented with the first round World Cup match draws and a simple menu system in icon form.

You can select which teams to control and choose to play a friendly, challenge or cup match. It's advisable to play the first game as a

friendly with the speed reduced to Slow so that you can get used to the keys and game-play. For a friendly you can also adjust the skill of the goalies – to make sure you win I recommend a rating of nine for you and zero for the Electron. In the challenge and cup matches the skill is chosen at random.

The main play area, in Mode 5, is viewed from above with shirts either white or red, although the player who is on the ball flashes black and white. Normally you control the player nearest the ball, but you can flick between any of your players on screen by pressing Return.

Doing so if he is close to one of the opposition who has the ball results in a sliding tackle – the only type you get – and pressing Return when you have the ball kicks it in the direction you are facing. You can dribble until tackled or kicked.

The micro controls all the other players on your side, including the goalie. Apart from goal kicks you don't get to control his movement. While this works quite well it does mean that you can't change the player you are controlling while the goalie has the ball.

The ball is large and stays near the centre of the screen while everything else scrolls around it. All the obvious rules of the game are being adhered to, but I haven't been able to establish whether offsides are



Second Opinion

This soccer simulation is in a class of its own – it's brilliant. The graphics are good and the gameplay is addictive and exciting.

My tactics – which worked most of the time – are to boot the ball upfield and leg after it as fast as possible. On gaining possession you can dribble past the defenders and blast it into the back of the net. Recommended for all football fanatics.

Roland Waddilove

included. It is possible to play through the World Cup very quickly using the one minute each way option (it seems more like 45 minutes when you're getting thrashed 9-0 by the computer).

You can opt for up to five minutes each way if you prefer a longer game. Everything runs just as it should with first and second round eliminations, semis and final.

If you are playing on your own I would advise not trying to run more than one team as you might end up playing against yourself! Only the full time scores are shown when two computer controlled teams play each other, so you don't have to sit through every match.

Under the challenge option you play each team in turn until you lose. I haven't managed to progress very far, so I can't say what awaits the winner.

The graphics are as good as they could be, with garbage overwriting the top and bottom of the screen above and below the playing window. The sound is limited to a whistle, a ball against boot kicking effect and frying chips cheering and applause. You can switch off the sound, but I didn't find it annoying enough to use that option.

The game is very playable and you get a feeling of real involvement as you knock the ball into the corner of the net straight past the diving goalie. It's definitely one to play again and again, and if you can gather together enough friends it could make for a good day's enjoyment - and not a lot of games can do that.

Janice Murray

Sound	5
Graphics	9
Playability	10
Value for money	9
Overall	9



Arcade Soccer is the first Electron football game to feature graphics

The World Cup fixture list and menu options

White Magic 2
 Price: £9.95
 Supplier: The Fourth Dimension, PO Box
 4444, Sheffield.
 Tel: 0742 700661

HARD on the heels of *White Magic* comes the sequel. The new game hardly differs from the original apart from a slightly modified title screen and the addition of a screen designer.

You get 32 new levels to play and pretty tough they are too. After a full day's play I only got to the fourth one. Still they are not so difficult that they discourage you from playing on.

The sound and graphics are all exactly the same as the previous version which means they're top quality backgrounds and characters and the sprites still resemble and move like the ones in *Ravenskull*.

However, the screen designer is what *White Magic 2* is really all about. It is loaded separately and is stored after the game but before the first level on the tape. You are presented with the majority of the screen blank, a scrollable window containing the available icons, two areas showing the piece of scenery under the pointer and the other containing the currently selected one.

To create a level you just paint over the blank area. The Z, X, : and / keys move the cursor, while A, S, P and L are used to choose an icon. Return places an icon on the screen and Delete erases it. The manual I used was only the draft version, but I did take heed of the warning that the border must contain solid characters. You needn't worry however, as the editor has fairly extensive error checks which include examining the border, ensuring there is a trap-door and master key.

Of course, what it can't do is check that the level can be completed – the overall design is up to you. It's very simple to just sit down and start creating, but the size of the screen is huge and designing puzzles

DIY magic

requires a little forethought.

My first screen was a lovely symmetrical affair with the start in the bottom left and the end in the top right. However, when I came to play test it I had my first introduction to the less friendly aspects of this software.

The start position must be within a small area in the top left of the screen. So much for my clever design – and no there isn't a

rotate option. Then there's a whole series of questions about what to call the level, the time limit, where the teleports transport to and, finally, you're told what the edit code is – essential if you want to re-edit at a later date.

What's really annoying is that this happens every time you want to try out your creation. Why there couldn't have been another menu option to enter these details just once I really don't know – after all, the rest of the editor is well designed.

Anyway I went back to the drawing board and designed a whole new level which worked exceedingly well, if I do say so myself. There are a great number of factors which control how to design a screen but you learn these through experience. A devils mind also helps.

Lazarus

Sound	6
Graphics	10
Playability	10
Value for money	9
Overall	9



A level designer and 32 new screens provide the entertainment



Second Opinion

Unless Superior can produce a new block buster pretty quick the Repton fan club will soon be turning its attentions to The Fourth Dimension's *White Magic I* and II. The sequel to the original arcade adventure includes 32 new levels plus a screen designer.

The editor is well equipped and easy to use, so when you've mastered the 32 levels supplied you can try your hand at designing your own and swap them with friends. Recommended.

Roland Waddilove

**Neil Fawcett examines
the new LSP-100 Epson
compatible printer**

THE LSP-100 bi-directional dot matrix printer is Citizen's latest addition to an already impressive range of products. As with most printers, you have the option of friction or tractor feed and this can be selected easily by moving a lever on the top right of the casing.

You also have the option to load paper from underneath the printer using a process called bottom-feeding (as seen in Figure 1). Loading paper this way can only be done when your printer is mounted on a stand.

The tractor feed mechanism must be attached to the printer and you must use



A pretty solid Citizen

continuous stationery. Loading paper is just like setting the tractor feed up, except the paper comes from underneath.

On the front right side of the printer are three buttons controlling the online status, form feed and line feed.

The printer must be brought offline before the feed buttons will work – rather annoying, but this is the case with several printers. Next comes a panel with three small lights – power, paper out and ready.

The DIP switches are easy to access: You simply switch the printer off and remove a cartridge-style interface located on the right of the printer as you look at it. You can then alter the switches to suit your micro. Instructions on how to do so are very well documented in the manual.

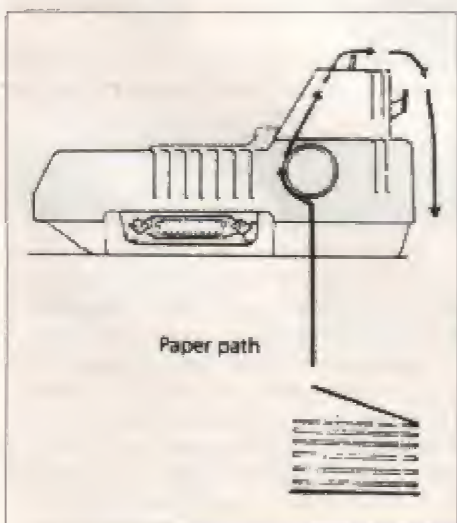


Figure 1: Loading the printer using bottom-feeding

The printer is Epson-compatible and it is also switchable to IBM-compatible.

The LSP-100 is an 80 column printer and the print head has nine pins which are used to give you a 9 x 9 matrix.

When used in NLQ mode a double pass of the head allows the matrix to change to 17 x 17 and this gives you a wide variety of styles and typefaces.

The print speed is 150/175 characters per second (cps) at 10/12 characters per inch (cpi) in draft mode and 40 cps in NLQ mode. Now that is quite a mouthful, but it gives you an idea of the capabilities of this machine.

It is interesting to note that although this is quite a fast printer it is also very quiet. Even when doing a screen dump I could still manage to concentrate on other work while it was churning away.

There is a built-in 4k buffer – very useful indeed, as it allows you to continue working on your micro as the printer does its work.

However, there is a snag with the large buffer – there isn't a flush button. So, if you make a mistake you have to wait until that large 4k buffer empties. Alternatively you can turn the printer off.

Fitting the cartridge type ribbon poses no problems. It's claimed to last for two million characters – but I didn't have time to test this.

The LSP-100 has a sleek modern look and

is surprisingly compact when you consider that it does some tasks that printers twice its price can't.

The manual is well presented and easy to read with plenty of diagrams showing things like fitting the ribbon and so on.

This is a superb printer, well priced and should satisfy the needs of most homes and small businesses.

Specifications

- 150/175 cps at 10/12 cpi in draft and 40 cps in NLQ
- Epson and IBM compatibility
- Parallel interface standard
- Tractor feed and friction feed
- 4k buffer
- 8 bit graphics capabilities
- Downloadable characters
- More than 400 print styles
- Automatic sheetfeeder available
- Bottom-feed paper loading option

Product: Citizen LSP-100 printer

Price: £286.35

Supplier: Citizen Europe, Wellington House, 4-10 Cowley Road, Uxbridge, Middlesex UB8 2XW.

Tel: 0895 72621

THE chill in the wind tells me that winter is creeping in and soon the bonfires will once more be lit to guide my knights back to Camelot. It will not be long before we will sit around the flames and recount tales of our adventures both new and old. What more can a king ask for than a trusty steed, a band of dour and loyal knights and an expanded Electron, on which to battle during the winter.

No new releases to report this month, but with a back catalogue of more than 500 Electron and Electron-compatible BBC Micro text adventures, you are hardly ever likely to be bored or stuck for a quest to endure.

While on the subject of back catalogues, I have copies of Special Operations (1984) and the original Magus version of Village of Lost Souls (1985) to give away to senders of the first full solutions I receive to Acornsoft's Quondam and Gateway to Karos.

Next time you are in a bookshop try to

Adventures

By Pendragon

find a tome published by Penguin called *The Soul of a New Machine* by Tracy Kidder. The tale is about the design of a new computer way back in 1979, and describes the author's introduction to Crowther and Woods' Adventure.

If you want to know what adventuring is all about I suggest you turn to page 82 of this book and start reading! Old hands will recognise the scene straight away, and you can cut the atmosphere with a knife – it

really is superb stuff.

This month's featured map is of the opening scenario to Epic's age old classic, Castle Frankenstein. I hope this will help adventurers who may still be stuck at the outset of this beautiful gothic romp.

Next month I continue this popular series with a guide to the openings to Riverdale's American Suds.

● *So until the frost forgets to bite, happy adventuring.*

Winter bon

Readers Hall of Fame

Plane Crash

James Farmer

You begin trapped in your seat harness in the cabin of the crashed plane. To free yourself, you must LOOK and get the bag. Open it, get and open the shaving kit. Get the razor and cut the harness.

You must now deal with the fire. LOOK and take the extinguisher. Examine it, read the instructions and pull the pin: point the extinguisher at the fire and pull the lever to extinguish it. Open the door to avoid choking on the smoke.

Now go to the galley and examine the shelves. Ignore the beads, but take the survival pack and open it. Open the cupboard, take the box and open it. Take what you find and push the door with the extinguisher. Go out of the door, examine the pilot, examine his pocket and take the compass.

To get out, you must smash the wind-screen with the extinguisher, clear the glass with the extinguisher and GO WIND-SCREEN.

Go NORTH and put the spider in the box. Now LOOK and get the wood. Go EAST twice and open the box. Go WEST and LOOK. Keep looking until the light begins to fail. Then OPEN WOOL, DROP WOOL and drop the wood. Light a fire, then go EAST and sleep.

When you wake, go WEST, WEST, SOUTH, SOUTH, EAST, EAST, EAST and

cross the river. You will now be in part two of the game. This part is set mainly in a jungle maze. You will be trapped in a hut and must act quickly to free yourself as the headhunters plan to sacrifice you to their god.

You must LOOK and get the grass, then light a fire and GO WALL. Now travel WEST, NORTH, NORTH, NORTH, LOOK, WEST, LOOK, EAST, EAST, EAST and examine the bush. Get the berries and go WEST twice. Now go SOUTH, SOUTH, SOUTH, EAST, EAST, EAST, NORTH, NORTH, WEST and EAT K RATIONS.

LOOK and TIE HOOK TO LINE. Bait the hook and CATCH FISH. Take the fish before going EAST, SOUTH, SOUTH, WEST, WEST, WEST, NORTH, NORTH, NORTH, NORTH, WEST, WEST, WEST, SOUTH, WEST, SOUTH to the clearing. Now LOOK and take the wood.

Go SOUTH and drop the grass and wood. Go SOUTH again and examine the ferns. Then go NORTH, light a fire, then cook and eat the fish. Now go SOUTH and sleep.

When you wake go NORTH and EAST twice, milk the goat and drink the milk. Go WEST, WEST, SOUTH, EAST, SOUTH, SOUTH, EAST and JUMP. To save yourself you must pull the handle and grab the dinghy. Now CLIMB DINGHY, GET OARS and ROW DINGHY. To finish the game, CLIMB STAGE.

Acheton

Bob Purder

Due to the massive size of this adventure, this solution will be serialised in many parts during the next few months.

Go into the house and collect the lamp, keys, bottle and paint. Now go and unlock the gate. Venture into the caves, turn your lamp on and get the casket. Visit the cloak-room, open the casket, take the coat and drop the casket. Now visit the Zoogeroom and get the sapphire, sail and thread. Go to the Slabroom and drop all but the lamp and sapphire.

Go EAST and get the marble. Journey to the giant's prison via the star room. Get the plate and beryl and throw the marble as the giant approaches. Take the opportunity to get the crown, go to the star room and turn off your lamp. Now drop the beryl, sapphire and zooge and turn the lamp on.

Go to the orb and drop the crown. Now go to the slab, drop the marble and plate and take the keys. Now enter the stockroom and take the manacles.

You must now visit the tomb room and dig. Take the pearls, throw the manacles, take the dagger to the star room and drop it. Collect the ebony, pillow and matches. Go to the fissure, DROP ALL, JUMP, TAKE VIOLIN and JUMP again. Now TAKE ALL including the mace. (Continued next month)

Overture and Beginners

Since I started this section of the adventure column almost three years ago, many readers have written in asking when particular aspects of text adventuring have been covered.

So to placate all you diehards and novices, here is a run down of the itinerary to the beginners' help section since it began in December 1986.

Setting out: December 1986/January 1987

Mapping techniques: February 1987-April 1987

Adventure logic: May 1987/June 1987

Mazes: July 1987/August 1987

Problem solving: September 1987/October 1987

Glossary of adventuring terms: November 1987-May 1989

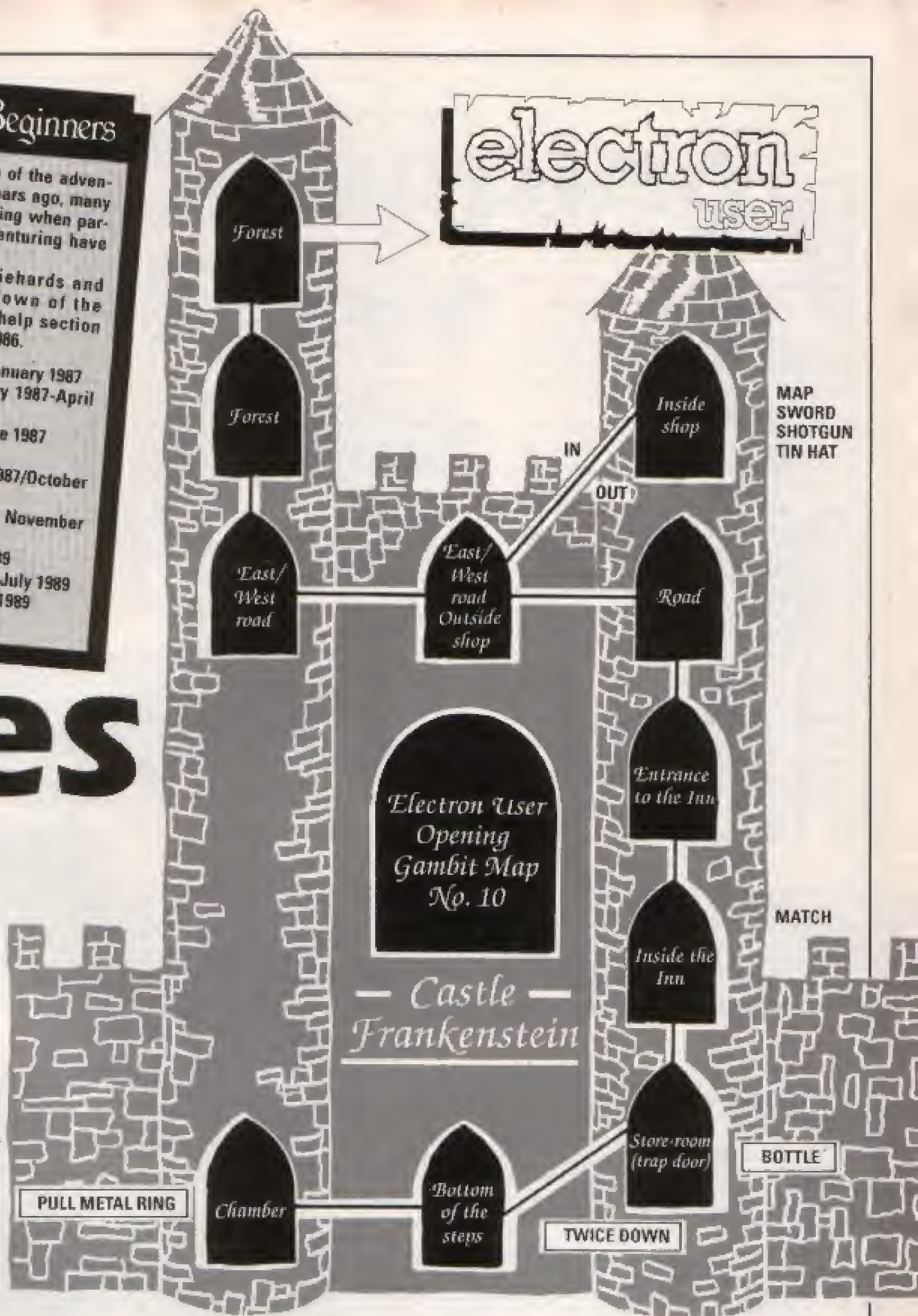
Producing atmosphere: June 1989

Collecting and utilising objects: July 1989

Riddles and puzzles: September 1989

Adventure parsers: October 1989

fires



Problems Solved

This month I continue with help in what is in my opinion the most difficult adventure ever to be released for the Electron. What follows should guide you through the strange lands upon which **The Ferryman Awaits** is built.

Well: This is a short cut to the tunnel west of the mud lake. After the rock fall the well is filled with rubble.

Mud lake: You can go South East to the bay and the tunnel after the fungus has grown.

The level rises after the roof has been brought down. Then you can cross North to the dark opening and collect the cube.

Stairway: To reach the top leading to Agrogorggan's lair you must create a mist so the archers can't see to shoot.

Gap: DROP DOOR at the west end of the ledge in the tunnel running West from the lake. LOOK reveals the bar.

Gravel slope: At the bottom DIG, which moves you several locations down river and uncovers a lump of sulphur - revealed only

after returning there. At the top, drop or THROW BAR to fix the rope which allows the slope to be climbed.

Temple: Reached by going West then North West from the Guardroom. EXAMINE STATUE reveals that it is movable.

Roof of tower: Enter the gap by the statue, THROW BAR and climb the rope which hangs from the hand.

Balcony: Reached by going along the ledge

Turn to Page 20 ►

◀ From Page 19

North East from the gap.

Desert: Go South East across the lake as far as possible, then East. Use the hat to get to the gully. Travel North, South, East, West, East, East to reach the river South of the tower.

Sandstone gully: The horn is here. You will also find any object dropped in the desert.

Stone bridge: Go from the desert to the south end of Tower Bridge. NORTH WEST triggers a semi-automatic sequence to the North-South gully. Move to the gully below the stone bridge, then go up.

Mist-filled hollow: EAST from the stone bridge. Examine the mist for a vision of the tower. WEAR HAT transports you to South of the bridge. Objects dropped here disappear.

Stone tree: WEST, SOUTH WEST, EAST from the stone bridge. An old man in the branches exchanges the rod (magic wand) for chalk with which you draw the pentagram.

Rock chamber: Drop the horn here. A glowing pentagram is then seen: SAY DEATH, TIME, AGROGORGAN and NAGGROGORGGA to conjure them up briefly. After the waiting room time lapse this has a different effect.

Valley of the shadow of death: DRINK and examine the mirror which shows you are now one of the living dead and immune to the guards' spears, Agrogorggan's burning eye, rock falls and so on.

Windswept plain: Use the hat to reach the circle of stones and the jerkin – objects dropped on the plain turn up here.

Pirate cave: Go North West from the beach. You must be wearing the tricorne hat, jerkin, boots and carrying the parrot and keg of rum. Take an inventory and it will show that the keg has been exchanged for a sticky lump of tar.

Rock fall in tunnel: Return to the Tower, go South East across the lake and through the tunnel to the section with the cracked roof. SAY MORVELL and the sword explodes, bringing down the roof. Escape from the crack in ground with the horn by SAY MOLD.

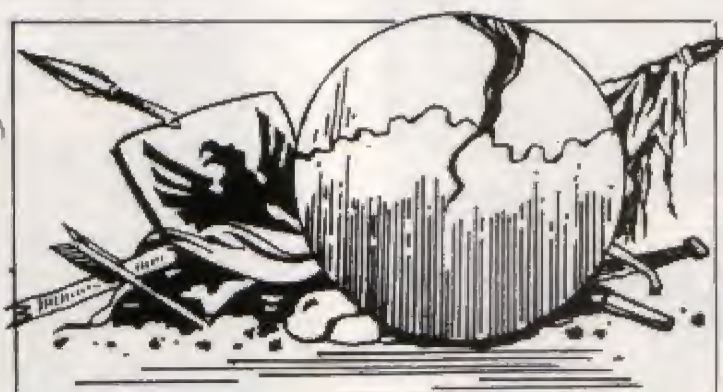
Mud lake: Back to the tower. You can't descend the stairway as the level of the lake has risen, but you can now go North

across the pumice blocks to the dark opening.

Dark opening: Leads to the chamber where you find the cube. You must wear the boots, or the roof caves in.

Waiting room: In the temple. Waiting is fatal unless you are one of the living dead. LICK CUBE and it brings horrifying visions, and eons of time pass by. EXAMINE MIRROR shows a skull-like face. LOOK and the slab has cracked.

Hall of black marble: WEST from the top of staircase. Horned demons guard the entrance NORTH to Agrogorggan's lair. They can be killed with the magic sword but then the roof can't be brought down in the tunnel. Wear the robe and carry the scythe and they draw back in fear.



electron
user

MAIL ORDER OFFERS

electron
user

MAIL ORDER OFFERS

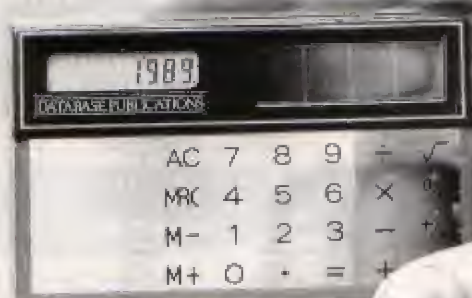
**Solar powered,
see through calculator.
FREE with orders
over £25***

Using state-of-the-art technology this calculator has an invisible membrane keypad, runs from solar cells (so you'll never need any batteries), and because it's only the size of a credit card it fits easily in your wallet or pocket.

This exclusive limited edition calculator can be yours for just £7.95 – or we'll send you one ABSOLUTELY FREE with every order over £25!

* UK orders only (not subscriptions). Subject to availability

EXCLUSIVE



TO ORDER PLEASE USE THE FORM ON PAGE 45

Shopping Spree

SHOPPING Spree is a text adventure game in which you take the part of a 12-year-old boy who is shopping for Christmas presents for his family. They are a fussy lot and very difficult to please, which makes your task all the more frustrating.

You start out in the High Street and can enter any of the shops you see there. Many potential presents will catch your eye, but you must choose wisely as you have only £15 to spend on your mother, father, sister and pet dog. Watch out for thieves who may steal your bag, and don't give away your money to strange beggars. Or perhaps you should, for they may do you a good turn when you desperately need help.

Take care to buy the correct present for each member of your family as they will be very ungrateful and angry if you don't. What a miserable lot, and in the festive season too!

A quick run down on your family will help you choose the right presents: Your mother is middleaged, a typical nagger. Quite knowledgeable about pop music, but still thinks we're living in the 60s. Your father is young and trendy, and is sure he is the

Christmas shopping crowds getting you down? Then try this simulation from Peter and Deborah Wood

greatest. He's quite generous. Sister is posh but bossy - likes to have her own way. She loves listening to Beethoven. The dog is affectionate but greedy, especially around meal times.

After buying all the presents you wait for Christmas Day, and when it finally comes round you hand them out. Did you buy the right ones, or are you sent to your bedroom for the rest of the day? Play Shopping Spree and find out...



```

10 REM Shopping Spree
20 REM By Peter & Deborah Wood
30 REM (c) Electron User
40 YDU 23,255,0,24,36,66,126,1
26,126,126
50 MODE 4
60 YDU 19,1,2,0,0,0:
70 CLS
80 PRINT TAB(11,1)"SHOPPING SP
REE"
90 PRINT TAB(0,2);"By Peter &
Deborah Wood"
100 PRINT TAB(0,3):
110 FOR A=0 TO 39
120 YDU 255,:NEXT
130 PROCINST
140 END
150 DEFPROCINST
160 FOR x=0 TO 38:PRINT TAB(x,2
4):CHR$(255):
170 NEXT
180 YDU 28,0,23,39,4:
190 PRINT TAB(12,0)"INSTRUCTION
S"
200 PRINT
210 PRINT "It is very near to C
hristmas and it is now time to g

```

o on your yearly shopping spree, buying gifts for your family."

220 PRINT "You have £15 to spend in all the shops visited. Sounds easy, but, your family are very difficult to buy for and are certainly not afraid of speaking their minds when it comes to Christmas presents."

240 PRINT

250 PRINT "THE BRIEF SUMMARY GIVEN OF EACH PERSON WILL HELP YOU DECIDE WHAT TO BUY."

260 PRINT "YOU ARE ALSO TIMED, STARTING WHEN YOU PRESS SPACE"

270 PRINT TAB(10,18);"HAPPY SHOPPING!!..."

280 PRINT TAB(12,19)"PRESS <SPACE>";

290 REPEAT

300 KEYS=INKEY\$(1)

310 UNTIL INKEY\$(-99)

320 PROC1

330 ENDPROC

340 DEFPROC1

Turn to Page 22 ►

◀ From Page 21

```

350 CLS
360 M=0
370 TIME=0
380 MONEYX=1500
390 CASEX=0
400 EARX=0
410 MUGX=0
420 M=0
430 B=0
440 S=0
450 X=0
460 R=0
470 BONEY=0
480 PRINT:PRINT"
*****":PRINT
490 PRINT "You are standing in
the square, and you can see two s
hops,NEXT and WHSMITHS. NEXT h
as a large sale sign in the windo
what you spot a particularly love
ly pencil case in the window
of WHSMITHS, in beautifully";
500 PRINT "complimentary flures
ent pink and green."
510 PRINT:INPUT "DO YOU GO INTO
SMITHS OR NEXT(S/N)"A1$
520 IF A1$="S" PROC2
530 IF A1$="N" PROC3 ELSE PRINT
: PRINT "INPUT-NOT ACCEPTABLE....
..":GOTO 510
540 ENDPROC
550 DEFPROC2
560 PRINT:PRINT"
*****":PRINT
570 PRINT
580 PRINT "You enter SMITHS and
inquire about the cost of the p
encil case, and find it is partic
ularly expensive-£5.50-can you
afford it? Remember you still ha
ve three presents to buy."
590 PRINT:INPUT "DO YOU BUY THE
PENCIL CASE(Y/N)?"A2$
600 PRICEX=550
610 IF A2$="Y" PROCBUY
620 IF A2$="Y" AND R=1 PROC4
630 IF A2$="N" OR A2$="Y" AND R
=0 PROC5 ELSE PRINT"INPUT-NOT AC
CEPTABLE.....":GOTO 590
640 ENDPROC
650 DEFPROC3
660 PRINT:PRINT"
*****":PRINT
670 PRINT "You've seen it, the'
bargain of the century, but
it's over at the other side of the
shop! You see several people
moving towards the earrings (£4.5
0) which you know will suit your s
ister."
680 PRINT:INPUT "DO YOU MAKE AN
EXHIBITION OF YOURSELF BY RUNNING
ACROSS THE SHOP(Y/N)?"A3$
690 IF A3$="Y" PROC8
700 IF A3$="N" PROC10
710 ENDPROC
720 DEFPROC4
730 PRINT:PRINT"
*****":PRINT
740 CASEX=1
750 PRINT" 'You are our milliont
h customer in our new store' say
s the cashier. You can have a £2.50
gift voucher. You feel a little
hungry."
760 PRINT:INPUT "DO YOU BUY A B
OX OF SWEETS TO EAT-THOSE CREAM F
ILLED ONES YOU REALLY ADORE(Y/N)?"
A4$
770 IF A4$="Y" PROC6
780 IF A4$="N" PROC7 ELSE PRINT
: PRINT "INPUT-NOT ACCEPTABLE....

```

SHOPPING SPREE By Peter & ----- Deborah Wood *****

You enter SMITHS and inquire about the cost of the pencil case, and find it is particularly expensive-£5.50-can you afford it? Remember you still have three presents to buy.

DO YOU BUY THE PENCIL CASE(Y/N)?Y

'You are our millionth customer in our new store' says the cashier. You can have a £2.50 gift voucher. You feel a little hungry.

DO YOU BUY A BOX OF SWEETS TO EAT-THOSE CREAM FILLED ONES YOU REALLY ADORE(Y/N)?

```

..":GOTO 760
790 ENDPROC
800 DEFPROC5
810 PRINT:PRINT"
*****":PRINT
820 PRINT "Where next?-Exactly
NEXT. You have LOADSA MONEY
left, but lots of presents to buy
. But, as you come out of the
store, a rather distressed looki
ng female is asking if anyon
e can lend";
830 PRINT " her £1 to make a ph
one-call as she has forgotte
n her purse and must be back to w
ork in five minutes."
840 PRINT:INPUT "THIS SEEMS A L
OT OF MONEY FOR A PHONE CALL, B
UT DO YOU GIVE IT TO HER(Y/N)?"A5
$
850 IF A5$="Y" M=1 ELSE M=0
860 PRINT
870 PRINT"YOU NOW GO TO NEXT":P
ROC3
880 ENDPROC
890 DEFPROC6
900 PRINT:PRINT"
*****":PRINT
910 PRINT "You buy and eat the
sweets, and feel much better."
:PROC5
920 ENDPROC
930 DEFPROC7
940 PRINT:PRINT"
*****":PRINT
950 PRINT "You feel very hungry
, and begin to feel dizzy. The ne
xt thing you remember is a large
crowd peering down at you, and
your head hurts. Your cheeks are
a rather reddish colour and
you decide"
960 PRINT "your best option is
to return home as quickly as poss
ible.":PROCEND
970 ENDPROC
980 DEFPROC8
990 PRINT:PRINT"
*****":PRINT
1000 PRICEZ=450
1010 PRINT "A hand comes down on
your shoulder, it is the store

```

```

detective. 'Who do you think you ar
e, running like that."
1020 IF M=1 PRINT "But it's the
Lady you helped earlier and sa
ys it is Ok, and goes and gets th
earrings for you to buy and ret
urns the pound she borrowed earlie
r."
1030 IF M=1 EARX=1 ELSE EARX=0
1040 PROCBUY
1050 IF M=0 PRINT "You are in de
ep trouble, 'Out of this shop i
mmediately,' she says."
1060 PRINT:PRINT"ANOTHER SHOP NO
W.....":PROC10
1070 ENDPROC
1080 DEFPROC9
1090 PRINT:PRINT"
*****":PRINT
1100 PRINT "You just make it to
see someone else lift the ear-
rings off the shelf-hard luck,
Pal."
1110 PRINT:PRINT"ANOTHER SHOP NOW
.....":PROC10
1120 ENDPROC
1130 DEFPROC10
1140 PRINT:PRINT"
*****":PRINT
1150 PRINT "You go out into the
precinct, and consider BOOT
S as your next choice-you enter
the shop."
1160 PRINT:INPUT "WHICH DEPARTME
NT DO YOU GO TO-RECORDS, HOUSEHO
LD OR PET ITEMS(R/H/P)?"A10$
1170 IF A10$="R" PROC11
1180 IF A10$="H" PROC12
1190 IF A10$="P" PROC13 ELSE PRIN
T :PRINT "INPUT- NOT ACCEPTABLE..
.....":GOTO 1160
1200 ENDPROC
1210 DEF PROC11
1220 PRINT:PRINT"
*****":PRINT
1230 PRINT "As you make your way
to the record counter, you
notice a sign which says 'Buy a
ny 2 singles get one free.' Just
at this moment a small boy rushe

```

Turn to Page 24 ▶

Here's how you can get the very best out of your Electron

Within the pages of these three books you'll find ALL the information you need to fully harness the power of your Electron. They cover Basic, machine-code programming and the operating system, and between them they also show how to combine all three to create more powerful and effective programs.

For the give away price of just £7.95 for the three, these books represent exceptional value and are a must for any serious Electron user.

Electron Advanced User Guide

This detailed guide to the Electron's operating system is packed full of invaluable information. It shows you how to:

- Implement the powerful *FX/OSBYTE calls
- Write your own paged roms
- Program the ULA
- Make every byte count where program space is tight
- Use the Electron's exciting capabilities to the full by following the complete circuit diagram
- ...and much, much more.

This essential handbook will help you to exploit the full potential of your Electron. And for just £2.95, saving £6.50 off the recommended price, can you afford not to miss this offer?

Electron Assembly Language

The Electron Assembly Language reference guide will help you get to grips with machine code in next to no time. Whether you're a beginner or are already fairly proficient, there is something for you in this book.

It has over 200 pages packed with hints, tips and example programs on subjects ranging from basic hex, binary and decimal number theory and logical operators, through addressing modes, stacks and loops, to subroutines, jumps and calls.

Every aspect of machine-code programming is covered in this book in a friendly, readable style, and there's also a comprehensive index. If you want to get more out of your micro, but thought machine code was indecipherable, this is the book for you. *Save £3 off the recommended retail price.*

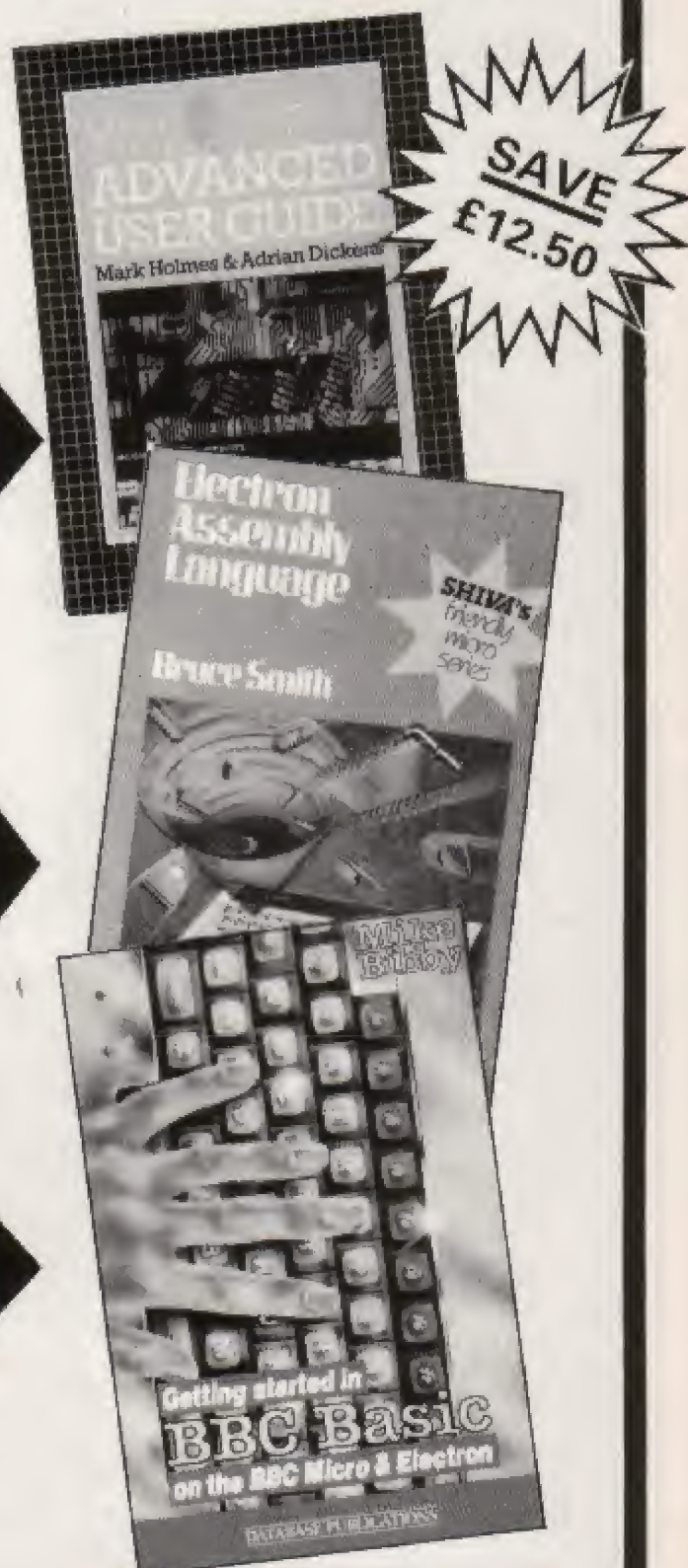
Getting started in BBC Basic on the BBC Micro & Electron

This is the ultimate guide available on BBC Basic. Written by a leading expert on the language, it will lead you through each Basic function in a simple, easy-to-follow style.

Whether you are a beginner or more advanced, there are examples of commonly-needed routines and neat tricks you can use to make Basic jump through hoops.

By working through its many examples you will gain a clear insight into structured programming and will quickly acquire the ability to use structured techniques in creating your own programs. *Save £3 off the recommended retail price.*

**Only
£7.95 for all three**



TO ORDER PLEASE USE THE FORM ON PAGE 45

◀ From Page 22

6 past"

1240 PRINT "and snatches your carrier bag, which contains your money."

1250 PRINT: INPUT "DO YOU RUN AFTER HIM(Y/N)?"A11\$

1260 IF A11\$="Y" PROC14

1270 IF A11\$="N" PROC15 ELSE PRINT: PRINT "INPUT- NOT ACCEPTABLE."

.....":GOTO 1250

1280 ENDPROC

1290 DEF PROC12

1300 PRINT: PRINT

*****: PRINT

1310 PRINT "In the household section, you find a set of mugs which are £4.50. They are beautifully designed, but can you afford them?"

1320 PRINT: INPUT "DO YOU BUY THE MUGS(Y/N)?"A12\$

1330 PRICE\$=450:

1340 IF A12\$="Y" PROCBUY

1350 IF A12\$="Y" AND R=1 PROC16

1360 IF A12\$="N" OR A12\$="Y" AND R=0 PROC17 ELSE PRINT: PRINT "INPUT- NOT ACCEPTABLE.....":GOTO 1320

1370 ENDPROC

1380 DEF PROCBUY

1390 R=1

1400 CHANGE\$=MONEY\$-PRICE\$

1410 IF CHANGE\$ < 0 PROCNO ELSE

MONEY\$=CHANGE\$

1420 ENDPROC

1430 DEF PROCNO

1440 R=0

1450 PRINT "YOU DO NOT HAVE SUFFICIENT MONEY... SORRY ABOUT THAT."

1460 ENDPROC

1470 DEF PROC13

1480 PRINT: PRINT

*****: PRINT

1490 PRINT "At the pet section you see a rather nice bone for 50p, but are apprehensive over whether it is fit enough for your beloved dog."

1500 PRINT: INPUT "DO YOU BUY THE BONE(Y/N)?"A13\$

1510 PRICE\$=50

1520 IF A13\$="Y" PROCBUY

1530 IF A13\$="Y" AND R=1 PROC18

1540 IF A13\$="N" OR A13\$="Y" AND R=0 PROC19 ELSE PRINT: PRINT "INPUT- NOT ACCEPTABLE.....":GOTO 1500

1550 ENDPROC

1560 DEF PROC14

1570 PRINT: PRINT

*****: PRINT

1580 PRINT "You run after him shouting THIEF, and just manage to catch his jacket as he is about to leave the shop, and retrieve your money."

1590 PRINT "An elderly lady cannot thank you enough, as the boy had also stolen her handbag! She gives you £2 to say thank you."

1600 MONEY\$=MONEY\$+200

1610 PRINT: INPUT "WHERE NOW, THE HOUSEHOLD OR PET SECTION (H/P)?"A14\$

1620 IF A14\$="H" PROC12

1630 IF A14\$="P" PROC13 ELSE PRINT: PRINT "INPUT- NOT ACCEPTABLE."

.....":GOTO 1610

1640 ENDPROC

1650 DEF PROC15

1660 PRINT: PRINT

*****: PRINT

1670 PRINT "There is nothing for it but to return home with what you have. On your way out of the shop, you notice a commotion, and see the small boy has been caught, and your money is returned."

1680 PRINT: INPUT "WHERE NOW, THE HOUSEHOLD OR PET SECTION (H/P)?"A14\$

1690 IF A14\$="H" PROC12

1700 IF A14\$="P" PROC13 ELSE PRINT: PRINT "INPUT- NOT ACCEPTABLE."

.....":GOTO 1680

1710 ENDPROC

1720 DEF PROC16

1730 PRINT: PRINT

*****: PRINT

1740 MUG\$=1

*****: PRINT

1750 PRINT "You buy the mugs and continue onto the pet section."

1760 PROC13

1770 ENDPROC

1780 DEF PROC17

1790 PRINT: PRINT

*****: PRINT

1800 MUG\$=0

1810 PRINT "You do not buy the mugs but continue on to the pet section."

1820 PROC13: ENDPROC

1830 DEF PROC18

1840 BONE\$=1

1850 PRINT: PRINT

*****: PRINT

1860 PRINT "You buy the bone, and it is gift wrapped! WHAT NEXT? It is 5:00pm so it is quite late."

1870 PRINT: INPUT "DO YOU RETURN HOME, OR GOTO ANOTHER SHOP(H/S)?"A18\$

1880 IF A18\$="H" PROCEND

1890 IF A18\$="S" PROC20 ELSE PRINT: PRINT "INPUT-NOT ACCEPTABLE."

.....":GOTO 1870

1900 ENDPROC

1910 DEF PROC19

1920 BONE\$=0

1930 PRINT: PRINT

*****: PRINT

1940 PRINT "You do not buy the bone. There is a nice pet store next door, so you go on to there. Here is a lovely box of dog biscuits-£2.50"

1950 PRINT: INPUT "DO YOU BUY THE BISCUITS(Y/N)?"A19\$

1960 PRICE\$=250

1970 IF A19\$="Y" PROCBUY

1980 IF A19\$="Y" AND R=1 THEN PROC21

1990 IF A19\$="N" OR A19\$="Y" AND R=0 PROC22 ELSE PRINT: PRINT "INPUT-NOT ACCEPTABLE.....":GOTO 1950

2000 ENDPROC

2010 DEF PROC20

2020 PRINT: PRINT

*****: PRINT

2030 PRINT "You now make your way to the sweet shop. Here is a lovely box of chocolates only £4.50"

2040 PRICE\$=450

2050 PRINT: INPUT "DO YOU BUY THE CHOCOLATES(Y/N)?"A20\$

2060 IF A20\$="Y" PROCBUY

2070 IF A20\$="Y" AND R=1 PROC23

2080 IF A20\$="N" OR A20\$="Y" AND R=0 PROC24 ELSE PRINT: PRINT "INPUT-NOT ACCEPTABLE.....":GOTO 2050

2090 ENDPROC

2100 DEF PROC21

2110 PRINT: PRINT

*****: PRINT

2120 B=1

2130 PRINT "You buy the biscuits and make your way to the sweet shop." : PROC20

2140 ENDPROC

2150 DEF PROC22

2160 B=0

2170 PRINT: PRINT

*****: PRINT

2180 PRINT "You don't buy the biscuits and make your way to the sweet shop."

2190 PROC20: ENDPROC

2200 DEF PROC23

2210 PRINT: PRINT

*****: PRINT

2220 PRINT "As you lift the box of chocolates off the shelf, the whole pile comes tumbling to the ground!"

2230 PRINT: INPUT "DO YOU HANG AROUND(Y/N)?"A23\$

2240 IF A23\$="Y" PROC25

2250 IF A23\$="N" PROC26 ELSE PRINT: PRINT "INPUT-NOT ACCEPTABLE.....":GOTO 2230

2260 ENDPROC

2270 DEF PROC24

2280 PRINT

*****: PRINT

2290 PRINT: PRINT

*****: PRINT

2300 PRINT "You decide not to buy the sweets, and make your way home, hoping you have something nice for everyone."

2310 PROCEND

2320 ENDPROC

2330 DEF PROC25

2340 PRINT: PRINT

*****: PRINT

2350 S=1

2360 PRINT "The shop assistant helps you to restock to shelves, and you buy the chocolates. It is




```
late now and you must go home."
2370 PROCEND
2380 ENDPROC
2390 DEFPROC26
2400PRINT:PRINT"      ***
*****":PRINT
2410 MONEYX=MONEYX+450
2420 PRINT "Just as you attempt
to make a quick get away, the lad
y in the shop stops you. You ha
ve to restack all the sweets
single handedly."
2430 PRINT "You eventually leave
the shop, and make your way home
. Then you realise you haveleft y
our presents in the sweet shop,
you return to find it closed.";
2440 PRINT "You have no time to
buy anymore presentsand MUST retu
rn home."
2450 S=0:MUGX=0:EARX=0:PENCILX=
0:B=0:BONEX= 0:S=0
2460 PROCEND
2470 ENDPROC
2480 DEF PROCEND
2490 PRINT:PRINT "      PRE
SS<SPACE>":REPEAT:LET KEYS=INKEYS
(1):UNTIL INKEY(-99)
2500 CLS
2510 FOR A=1 TO 19
2530 PRINT "IT'S CHRISTMAS DAY,
IT'S CHRISTMAS DAY."
2540 NEXT
2550 FOR C=0 TO 200:VDU 19,1,RND
(7),0,0,0:NEXT
2560 CLS:VDU 19,1,2,0,0,0
2570 PRINT :PRINT "Please use th
ese key-words...."
```

```
2580 PRINT "EARRINGS; PCASE; DBI
SCUITS; CHOCOLATES; BONE; MUGS.
"
2590 PRINT"It is now time to gi
ve out the presents.The presents
you have are..."
2600PRINT
2610IF CASEX=1 PRINT " PCASE";
2620IF EARX=1 PRINT " EARRINGS";
2630IF MUGX=1 PRINT " MUGS";
2640IF B=1 PRINT " DBISCUITS";
2650IF S=1 PRINT " CHOCOLATES";
2660IF BONEX=1 PRINT " BONE";
2670IF S=0 AND CASEX=0 AND EARX=
0 AND MUGX=0 AND B=0 AND BONEX=0
PRINT "NOTHING...";
2680 PRINT
2690 PRINT "IF YOU HAVE NOTHING
FOR THAT PERSON PRESS <RETURN
>"
2700 PRINT:PRINT "IF YOU ATTEMPT
TO GIVE THEM SOMETHING YOU DO
NOT HAVE YOUR FAMILY WILL NOT BE
PLEASED..."
2710 PRINT
2720 INPUT "WHAT HAVE YOU BROUGH
T FOR YOUR SISTER,...":G$
2730 IF G$="EARRINGS" AND EARX=1
PRINT "YOUR SISTER IS VERY PLEAS
ED...AND ALLOWSYOU TO USE HER BEE
THOVEN RECORDS"
2740 IF G$="EARRINGS" AND EARX=1
X=X+25 ELSE PRINT "YOUR SISTER I
S DISGUSTED"
2750 INPUT"WHAT HAVE YOU BROUGH
T FOR YOUR FATHER..."FS
2760 IF FS="PCASE" AND CASEX=1 P
RINT "YOU ARE GIVEN A RISE IN POC
```

```
XET MONEY."
2770 IF FS="PCASE" AND CASEX=1 X
=X + 25 ELSE PRINT "YOUR FATHER G
ROUNDS YBU FOR ONE MONTH."
2780 INPUT"WHAT HAVE YOU BROUGH
T FOR YOUR MOTHER..."MS
2790 IF MS="CHOCOLATES" AND S=1
PRINT "THANXYOU, LOVE. WHAT A NIC
E THOUGHT."
2800 IF MS="CHOCOLATES" AND S=1T
HEN X=X + 25 ELSE PRINT "YOU CAN
DO YOUR OWN COOKING AND IRONING I
N FUTURE..."
2810 INPUT"WHAT HAVE YOU BROUGH
T FOR YOUR DOG..."DS
2820 IF DS="DBISCUITS" AND B=1 P
RINT "HE LICKS YOU ALL OVER YOUR
FACE."
2830 IF DS="DBISCUITS" AND B=1 X
=X + 25 ELSE PRINT "YOUR DOG BITE
S YOU."
2840 PRINT"YOUR SCORE IS ";X;"%
";
2850 PRINT"YOUR TIME IS ";TIME
DIV 100;" secs"
2860 PROC60
2870 ENDPROC
2880 DEFPROC60
2890 PRINT"WOULD YOU LIKE ANOTH
ER GO(Y/N)?"
2900 REPEAT
2910 KEYS=INKEYS(1)
2920 UNTIL INKEY(-69) OR INKEY(-
86)
2930 IF INKEY(-69) CLS:GOTO 180
ELSE GOTO 2940
2940 PRINT "BYE-BYE":END
2950 ENDPROC
```

QUAL-SOFT

THOUGHTWARE

Sports simulations

"A real challenge to the thinking football fan... Bobby Robson could do worse than have a crack at this in his preparation for the World Cup".

AMSTRAD ACTION
REVIEW

QUAL-SOFT COMMENT: At last an INTELLIGENT management game for the knowledgeable soccer enthusiast!

TAPE 1
QUALIFIERS

ROME 90*

TAPE 2
FINALS

A WORLD CUP MANAGEMENT SIMULATION

Summer 1986 and English International football is at its lowest ebb. We have failed miserably for the European Nations Cup, and had a string of very poor International results. In a few months we will set out on the '90 World Cup qualifying trail. You have been given the most important job of restoring English pride in their football. You have a match in Athens, Denmark at Wembley, and a South American tour, to assemble a team, first to qualify, and then to beat the world's best in Athens.

TAPE 1 (Qualifiers)

- * Current squad of 18 players + 20 user defined players.
- * Friendlies in Athens, at Wembley + South American tour.
- * ANY team formation you choose. 2 from 5 substitutes.
- * In match tactics: any no. of individual player adjustments.
- * Your qualification group: full results and table.

TAPE 2 (Finals)

- * Choose a 20 man squad to take to the finals.
- * Group of 4 prelims. 18 to final knockout comp.
- * Extra Time, PENALTY SHOOT-OUTS, where relevant.
- * Formation and strength information on opposition.
- * 2 from 9 substitutes (the FA tells us so).

ENGLAND'S GAMES: FULL PITCH, 22 MAN, 3D GRAPHICS & SOUND EFFECTS

QUAL-SOFT comments: With 5 levels of play, 12 depths of sophistication, and "fun" graphics, this game can be enjoyed by an 8 year old youngster as a "fun" game, and by the most sophisticated as a tactical/strategy challenge of the highest order.

PACKAGE: Tape 1 plus Tape 2 plus 20 Page Manual £9.95 /57K
RAM usage: Some would call this a MEGAGAME: YES IT WILL
RUN ON YOUR 32K ELECTRON.

QUALSOFT GUARANTEE: Sent by 1ST CLASS POST on day of
the order with P.O. Cheque. Access payment is received.
Telephone Access orders accepted.

* ROME '90 is an update of the classic MEXICO '86

QUAL-SOFT,
Dept. EU
18 Hazelmere Rd.,
Stevenage, Herts SG2 8RX.

Tel: 0438
721936

Please supply:
ROME '90
Electron ☐
BBC 'B' ☐

Name:
Address:
Access No. (if applicable)

**Fast and furious action
is the order of the day
with Stuart Bain's game**

THIS simple but addictive game is based on that old favourite Tron, or Light Cycles. The action takes place on the stock market and your task is to prevent the dollar from cornering the market and crashing the pound.

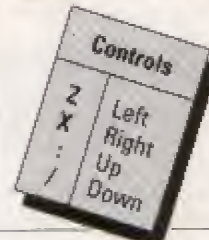
The screen is mainly blank except for a wall around the border and a pound and dollar placed at random somewhere in the middle. The dollar sets off in a random direction, turning left or right as necessary to avoid obstacles. The pound also sets off and it is up to you to make sure it doesn't bump into anything.

Both currencies leave a trail of the appropriate money behind them and the object is to corner the dollar and make it crash into

your trail, the wall or its own trail. The computer-controlled dollar will try to do the same to you. If you crash the dollar you'll move on to the next level where you'll pit your wits against two dollars. Complete this and you'll face three dollars, and so on, up to a total of six.

The action is fast paced and very addictive. The computer controlled dollars are quite clever, but it is possible to trap them if you keep your wits about you.

Dollar Dash



```
10 REM Dollar Dash
20 REM By Stuart Bain
30 REM (c) Electron User
40 DIM SX(1240),AX(5),BX(5),de
  X(5)
50 MODE 4
60 RX=RND(7):VDU 19,1,RX,0:19,
  0,RX:OR7,0;
70 VDU 23,1,0;0;0;23,224,&FF
  FF,&FFFF,&FFFF,&FFFF;
80 LevX=0:deX=0
90 PRINTTAB(10,12)"Stop the Do
  llar from"TAB(10,14)"Cornering th
  e Market"
100 FOR I=0 TO 2000:NEXT I
110 REPEAT CLS
120 FOR IX=0 TO 1240: SX(IX)=0:N
  EXT
130 PRINT STRING$(40,CHR$(224))TA
  B(0,30):STRING$(40,CHR$(224));
140 FOR I=1 TO 29
150 VDU 31,0,1,224,31,39,1,224
160 SX(I*40)=1: SX(I*40+39)=1
170 NEXT I
180 FOR I=0 TO 39
190 SX(I)=1: SX(I+1200)=1
200 NEXT I
210 FOR I=0 TO LevX
220 REPEAT
230 a=RND(36)+1:b=RND(27)+1
240 UNTIL a<16 OR a>23 OR b<11
  OR b>18
```

```
250 SX(a+b*40)=1:AX(I)=a+b*40:d
  eX(I)=1:c=RND(4):BX(I)=1*((c=1)-(
  c=2))+40*((c=3)-(c=4))
260 VDU 31,a,b,36
270 NEXT I
280 XX=RND(8)+415+RND(8)*40:c=R
  ND(4):ZX=1*((c=1)-(c=2))+40*((c=3
  )-(c=4))
290 VDU 31,XXMOD40,XXDIV40,96:S
  X(XX)=1
300 FOR I=12 TO 128 STEP 8
310 SOUND 1,-1,I,4
320 NEXT I
330 SOUND 1,-1,80,4:SOUND 1,-1,1
  00,5
340 REPEAT UNTIL ABVAL=6=15
350 REPEAT
360 TIME=0:H2=INKEY-98-INKEY-67
  :VX=40*(INKEY-105-INKEY-73)*(HX=0
  ):ZX=ZX*(HX=0ANDVX=0)+HX+VX:XX=X
  X+ZX
370 VDU 31,XXMOD40,XXDIV40,96
380 IF SX(XX) deX=1 ELSE SX(XX)
  =1
390 FOR IX=0 TO LevX
400 bX=BX(IX)
410 IF deX(IX)=0 GOTO 450 ELSE
  aX=AX(IX):IF SX(aX+bX) bX=-1:IF S
  X(aX+bX) bX=-40:IF SX(aX+bX) bX=1
  :IF SX(aX+bX) bX=40:IF SX(aX+bX)
  deX(IX)=0:GOTO 450
420 BX(IX)=bX:aX=aX+bX:AX(IX)=a
```

```
X: SX(aX)=1
430 VDU 31,aXMOD40,aXDIV40,36
440 IF SX(aX+bX) AND RND(2)=1 b
  X=1:IF SX(aX+bX) bX=40:IF SX(aX+b
  X) bX=-1:IF SX(aX+bX) bX=-40:IF S
  X(aX+bX) deX(IX)=0
450 BX(IX)=bX
460 NEXT I
470 FLX=0
480 FOR IX=0 TO LevX
490 FLX=FLX+deX(IX)
500 NEXT I
510 REPEAT UNTIL TIME>12
520 UNTIL deX OR FLX=0
530 LevX=LevX+1
540 UNTIL deX OR LevX=6
550 IF deX=0 FOR I=140 TO 180 S
  TEP 2:SOUND 1,-15,1,1:NEXT:VDU 28
  ,6,20,33,14,12:PRINTTAB(8)"WELL
  DONE !"" The Dollar is vanquis
  hed !"" press space to play aga
  in";REPEAT UNTIL INKEY=99:RUN
560 FOR I=40 TO 10 STEP-2
570 SOUND 1,-15,I,1
580 NEXT I
590 VDU 28,10,20,29,14,12
600 PRINT"" G A M E O V E R""
  "" The Dollar has won""TAB(4)"p
  res space";
610 REPEAT UNTIL INKEY=99:RUN
```


We interrupt this program to...

**Robert Henderson
adds another utility to
your bulging collection
of scrolling routines**

OVER the years we have published many scrolling routines – horizontal, vertical, coarse character based and fine pixel scrolling. We thought we had seen them all, but now Robert Henderson has produced yet another variation on the scrolling message theme.

Bigscroll is an extremely fast triple height text scroller that operates under interrupts. This means that no matter what the rest of the program is doing, the text will fly by in its scrolling window at the bottom of the screen.

Two, two-byte pointers hold the address of the message start and end – it can be any length and you're merely restricted by the amount of available memory. The more ram you have the bigger the message you can store. It is poked into memory at the start of the program.

Each character is taken by the routine and the bit pattern is obtained directly from the operating system rom – character definitions are stored from &C000 onwards. Each byte of the character is poked three times into memory to make the print three times higher than normal.

The whole machine code routine is exe-

cuted under interrupts every time frame fly-back occurs. As the code is quite long problems can occur because the micro can spend so much time in the interrupt that the main program can't get a look in and everything grinds to a halt.

To speed up the Electron the ADC is

switched off with *FX16 and keyboard processing is suspended with *FX178. This results in a significant saving in time, but at the expense of not being able to use the joystick port or keyboard. A Turbo Electron runs fast enough for these two *FX commands to be omitted.

```

10 REM Bigscroll
20 REM By R.Henderson
30 REM (c) Electron User
40 MODE 4:*FX16
50 VDU 23,1,0;0;0;0;
60 *FX178
70 PROCread(5)
80 HIMEM=&3000
90 REM Main machine code
100 FOR ix=0 TO 2 STEP 2
110 PX=&900
120 [ OPT ix
130 \ Save registers
140 .jp STA &79:STX &7A
150 STY &7B:CLD
160 .text
170 LDA &71:CMP &77:BEQ lx
180 INC &7D:BNE prg
190 INC &7F
200 \ Get letter and
210 \ store bit pattern
220 .prg
230 LDY #0:LDA (&7D),Y
240 CMP #1:BEQ invon
250 CMP #2:BEQ invoff
260 STA &80:JSR times
270 \ Call scrolling
280 \ subroutines
290 .scsl1
300 JSR scrolling:JSR loop
310 JSR scr:JSR xyz
320 JSR drw:JSR xyz:JSR tbleh
330 \ Restore registers
340 \ and quit
350 LDY &7B:LDX &7A
360 LDA &79:RTS
370 \ Scroll the message
380 .xyz
390 LDY #0
400 .loop
410 LDA (&72),Y:STA (&74),Y
420 INY:BNE loop
430 INC &75:INC &73
440 .loop2
450 LDA (&72),Y:STA (&74),Y:INY
460 CPY &84:BNE loop2
470 RTS
480 \ Checks for end
490 \ of message
500 .lx LDA &7D:CMP &76
510 BEQ xL:RTS
520 \ Checks for inverse
530 .invon LDA &8F:STA &78
540 INC &7D:JMP prg
550 .invoft LDA &80:STA &78
560 INC &7D:JMP prg
570 RTS

```

Turn to Page 28 ►

◀ From Page 27

```

580 .xl LDA #LoX:STA &70:LDA #h
ix
590 STA &71:INC &70:JMP prg
600 .rts RTS
610 \ Print triple
620 \ height letter
630 .tbln
640 LDA &8E:EOR &78:STA &7FFF:S
TA &7FFE:STA &7FFD:LDA &87:EOR &7
&8:STA &7FFC
650 STA &7FFB:STA &7FFA:LDA &86
:EOR &78:STA &7FF9:STA &7FF8
660 STA &7BF:LDA &85:EOR &78:S
TA &7BE:STA &7BD:STA &7BC:LDA
&84:EOR &78
670 STA &7BB:STA &7BA:STA &7E
&9:LDA &83:EOR &78:STA &7E8
680 STA &77F:STA &77E:LDA &82
:EOR &78:STA &77D:STA &77C:STA
&7078
690 LDA &81:EOR &78:STA &77A:S
TA &779:STA &778:RTS
700 .scrolling
710 LDA &7D:STA &75:STA &73
720 LDA &78:STA &74
730 LDA &80:STA &72:RTS
740 .drw
750 LDA &7E:STA &75:STA &73
760 LDA &8C:STA &74
770 LDA &8B:STA &72:RTS
780 .scr
790 LDA &7C:STA &75:STA &73
800 LDA &84:STA &74:LDA &849
810 STA &72:RTS
820 .times LDA &D:STA &8C
830 LDA &8D:SEC:SBC #32

```

```

840 \ Multiply by 8
850 STA &8B:CLC:ASL &8B:ROL &8C
860 ASL &8B:ROL &8C:ASL &8B:ROL
&8C
870 .scan
880 \ Get char def
890 \ from ROM
900 LDA &D:STA &8E:LDA &8C:STA
&8F
910 CLC:LDA &8B:ADC &8E:STA &8E
920 LDA &8C:ADC &8F:STA &8F
930 .do LDY #D:LDX #D
940 .dip LDA (&8E),Y:STA &81,X
950 INY:INX:CPX #8:BNE dip:RTS
960 :J:NEXT
970 &220=0:&221=&9:*FX14,4
980 PRINTTAB(12,14);"SCROLLING
TEXT"
990 PRINTTAB(17,16);"DEMO"
1000 *FX15,1
1010 GCOL 12,1:SOUND 1,1,100,-1:
flgX=0
1020 REPEAT:FOR LiX=464 TO 596 S
TEP 8
1030 MOVE D,LiX:DRAW 1278,LiX
1040 ENVELOPE 1,1,-1,1,&240,1,1
,4,0,0,0,0,0
1050 IF INKEY(D)=32 (LiX=1024:flg
X=1
1060 NEXT:UNTIL flgX=1
1070 VDU 7:*FX13,4
1080 CLS:VDU 23,1,1,0;0;0;0;END
1090 DEF #R0Cread(pointerX)
1100 startX=&3000:endX=&3200
1110 loX=startX MOD 256
1120 hiX=startX DIV 256
1130 fiX=endX MOD 256
1140 shX=endX DIV 256

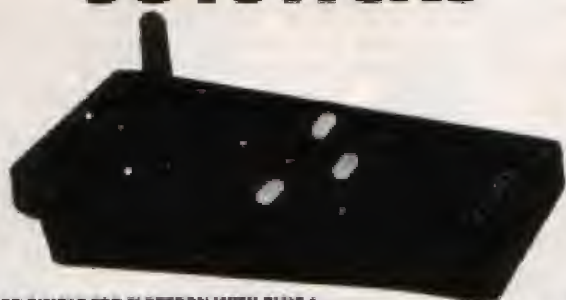
```

```

1150 &870=loX:&871=hiX
1160 &876=fiX:&877=shX
1170 FOR iX=startX TO endX:IFX=3
2:NEXT
1180 vX=startX
1190 FOR rX=0 TO pointerX:READ i
3
1200 FOR memZ=1 TO LEN(iX)
1210 datX=vX+memZ
1220 ?datX=ASC(MIDS(iX,memZ,1))
1230 NEXT
1240 vX=vX+(memZ-1)
1250 NEXT
1260 REM Poke inverse data
1270 &83182=1:&83194=2
1280 &878=0
1290 ENDPROC
1300 DATA " As you can see, thi
s is a demonstration of smooth (a
nd fast!) horizontal scrolling..."
1310 DATA "The code works in mod
e 4 only and (at least in theory)
is able to scroll a message of u
p to 65536 bytes (64k), which is
more space than you are ever like
ly to need..."
1320 DATA " You could have sc
rolling messages in high score ta
bles, demos and 1001 other uses..."
1330 DATA " It can also display
your message in "
1340 DATA " inverse video..."
How about that then ? ... "
1350 DATA " Type *FX13,4 to stop
the scrolling... Thats all fol
ks..."

```

JOYSTICKS



DELTA 3B SINGLE FOR ELECTRON WITH PLUS 1

£14.95

A single joystick that in some ways can act as two. The custom made special 'low noise' potentiometers are wired so that it will work as a left hand or right hand joystick. It can even run some programs written for two joysticks and has the fire buttons of both.

DELTA 3B TWIN FOR ELECTRON WITH PLUS 1

£21.95

A direct but improved alternative for the original ACORN joysticks, with 2 joysticks wired to one plug. As with all our joysticks they have the fast action sprung to centre return of the steel shafted nylon covered joystick. The light action makes them ideal to hold and the 3 fire buttons allow left or right-handed use.

DELTA 3S SINGLE-JOYSTICK TO FIT SWITCHED JOYSTICK INTERFACE

£14.95

JOYSTICK INTERFACE

£19.95

DELTA 3S + JOYSTICK INTERFACE TOGETHER

£29.95

SPECIAL OFFER

Stimline, Gray Fronted, Unceased, 3.5" DS 80T Disc Drives
£65

5 Volt Power Packs (modified video game power supplies) suitable for above drives
BARGAIN AT £9.95



Prices are inclusive of Carriage and VAT
Money back Guarantee if not satisfied



Voltmace

Unit 9 (Dept. EU)
Bondor Business Centre
London Road
Baldock
Herts SG7 6HP
Telephone: (0462) 894410

PMS MULTI-FONT NTQ

NEAR TEXT QUALITY FONT SOFTWARE

If you want to produce high quality worksheets, newsletters, OHP slides, menus, leaflets, pricelists, concert tickets/programs, reports or just add a bit of style to your personal letters - PMS MULTI-FONT NTQ does the job!

Use MULTI-FONT NTQ with VIEW, WORDWISE, WORDPOWER or from BASIC, and ANY Epson compatible printer to produce printout of this quality:

MULTI-HEIGHT
MULTI-FONT
BACKGROUNDS

MULTI-WIDTH
MULTI-PITCH
INVERSE

AóAÆÇæäöüöle α±+×√÷≡≠~≈≡♪

NTQ is supplied with 7 high quality fonts. Extra fonts from our extensive Font Library of over 80 fonts can be purchased at any time. NTQ comes on 2 ROMS with VIEW Printer Driver, User Guide and a powerful Font Designer.

SPECIAL PRICE £17.95 (inc. VAT, please add £1 carriage)

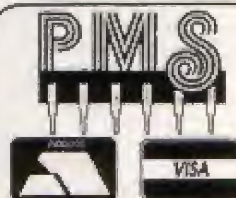
Price applies up till 31st December 1989

E2P SECOND PROCESSORS

Unfortunately PMS are stopping production of our very successful E2P-6502 Electron Second Processors. The E2P adds a massive 64K of RAM to the Electron and increases its speed beyond that of its "big brother" the BBC B1 for serious wordprocessing spreadsheets, or programming the E2P brings real computing power, and the maximum possible RAM to the Elk.

We have literally a handful of these products left - so contact PMS before ordering.

LAST CHANCE PRICE £74.95 (inc. VAT, please add £2 carriage)



Permanent Memory Systems
38 MOUNT CAMERON DRIVE
EAST KILBRIDE G74 2ES
SCOTLAND

03552 -32796 (24 Hour)

LIKE countless others, I often wonder how certain programmers achieve great success. Is the ability inherent within them before ever they begin programming. Or do they just get lucky. For example, how do they avoid the obstacles that turn into insurmountable problems for others?

The issue is shrouded in yet more mystery when you consider that most gifted programmers can't explain why they are able to program well. It is like music: You occasionally hear of musicians who cannot read music, but they are able to play tunes which make the hairs on the back of your neck stand up.

Certain people find programming second nature. For instance, some don't plan their strategy at all, but simply leap straight in. To the not so gifted this is programming suicide, and it usually leads to one of three outcomes: A program which is not what it could be, a project abandoned or a program structure that cannot be enhanced.

How about you. What do you do first? If you immediately begin programming then you probably assume that you belong to the group which doesn't need flowcharts or a

Francis Botto tries to discover how some programmers write such good software

a diet, you should never go programming on an empty head.

To get down to business, imagine you have come up with a program concept. First you should draft a descriptive algorithm which describes what it is to do. For instance, if you were programming an expert shell, you might write: "Program to permit the user to devise expert systems". The more concise it is the better.

Next comes the question: Should you use Basic or assembly language? This can be a difficult decision to make. Of course, you can always opt for a hybrid assembly language/Basic program which is one of the luxuries of the Electron.

If you are writing a program that does not

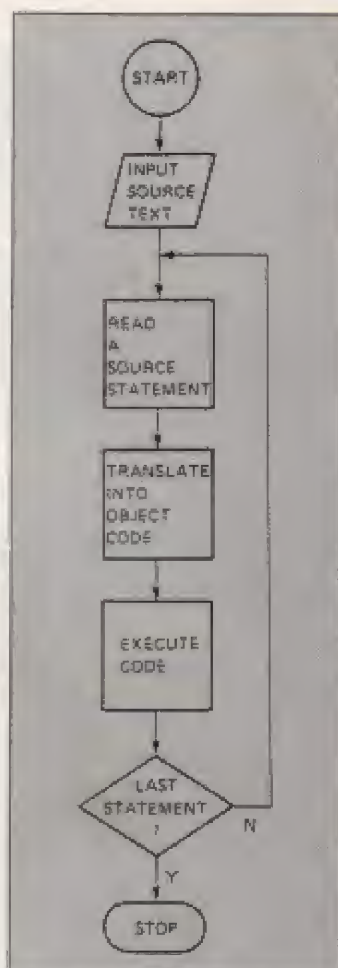
Turn to Page 30 ►

According to plan

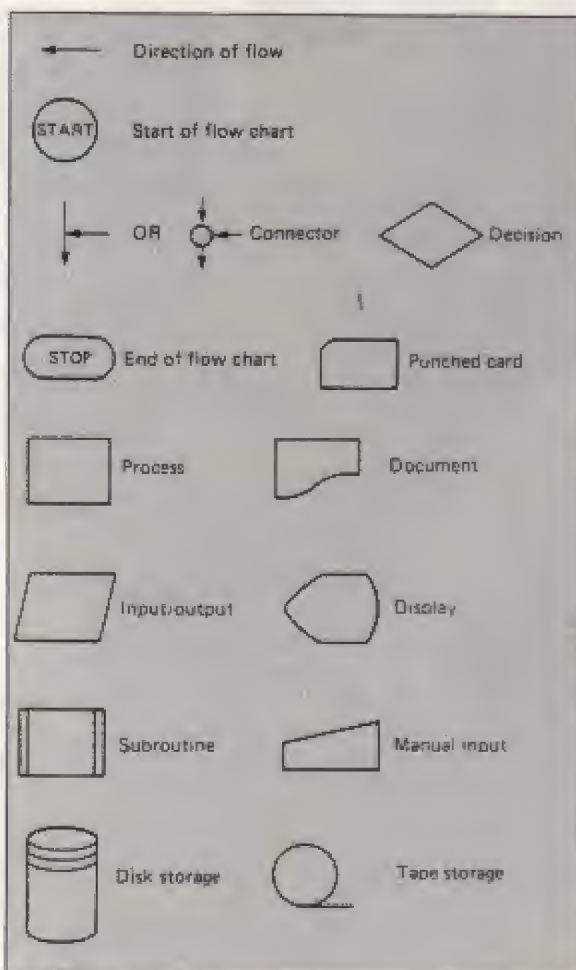
series of steps. However, that assumption might be misguided, as it might just be that you think you are a programmer who belongs to this elitist group, when in fact your work could be greatly improved by some basic preparation.

Amusing thoughts on this subject are expressed by Rodney Zaks, author of many computer books who wrote: "Ten per cent of the programming population can write a program successfully without having to flowchart. Unfortunately, 90 per cent of the population believes it belongs to this 10 per cent".

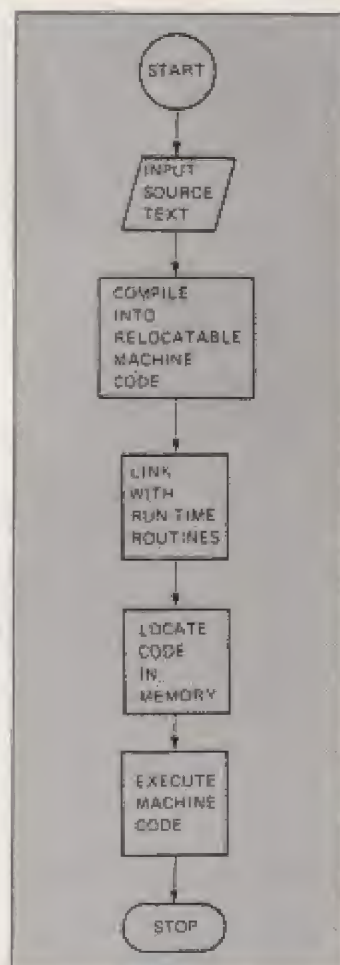
Therefore, a staggering 80 per cent of programs are nowhere near what could be described as optimum solutions. It should come as no surprise to hear that the best ones are usually those that emerge from careful planning. Just as you should never go shopping on an empty stomach while on



Flowchart for an interpreter



Flowchart symbols



Flowchart for a compiler

◀ From Page 29

depend upon a high speed of execution, then Basic will do. Alternatively, if high speed is the only route to a satisfactory program solution, you will probably find that you require assembly language.

It is also important to bear in mind your programming strengths and weaknesses. If you are not a fluent assembly language programmer you might find that you can develop an equivalent Basic program in a fraction of the time.

OK, you have a concept, descriptive algorithm and you have decided what language to use. What next? At this stage, a programmer who has not had a misspent period with the anti-structured programming set, which uses GOTOs, GOTOs and GOTOs, will have to decide on one of two approaches: A top down or bottom up analysis.

What is the difference? A top down analysis is simply a method of beginning at a high level and working your way down to the low level program workings. For instance, you might begin by listing all the procedures or subroutines you wish to use and then fill in the gaps, working your way down to low level program statements such as loops, input statements and other commands.

Not surprisingly, a bottom-up analysis is

the exact opposite, where you begin with low level workings making your way toward a high level solution. I think a top down analysis is the best approach, often leading to a better program structure, particularly when programming in Basic.

Now it is time to draft either a flowchart or a series of steps. Flowcharts are fine for achieving a high level outline, but the approach can break down when moving toward low level program workings. Using a bottom up analysis is not really practical while flowcharting.

The alternative to the flowchart is a series of steps:

PROGRAM Expert shell

- A. Procedure: Accept rules
 - 1. Input rules into array
- B. Procedure: Edit knowledge
 - 1. Pinpoint rule to edit
- C. Procedure: Inference engine
 - 1. Chain rules
- D. Procedure: Save knowledge
 - 1. Open file
 - 2. Write rules in array
- E. Procedure: Load Knowledge
 - 1. List all files if disc
 - 2. Load rules into array

The list is drafted in the classic outline style. When you reach this stage, whether you are using a flowchart or a series of

steps, you should pinpoint those parts of the program which appear more than once. You might find that one procedure can replace two or more of the others.

Most programming involves the repetition of the same program excerpts and programmers use the same basic structures. Assembly language is no different: What seems like a long and complex assembly language program will often contain many similar program sections.

The essence of good programming is to minimise the number of program sections which are repeated. That way you will end up with a compact program, save memory space, and achieve the most from the Electron. You can build a library of commonly used routines and merge them into your listing during program development, saving a great deal of time.

You can now begin programming and, if you are new to this planning approach, you will find that things go a lot more smoothly.

Planning and programming skills on their own do not necessarily mean that you will write successful programs – a good idea is required. However, it would be true to say that what should be a good program can be spoiled by a lack of careful planning. Hopefully you will now get down to writing that masterpiece for *Electron User* which you have been putting off for ages.

NEW

MODE 7 Mk2 UNIT

IMPROVEMENTS ALL ROUND:

CHEAPER AND MORE COMPACT THAN THE ORIGINAL ADAPTOR
FASTER AND LESS MEMORY USE THAN THE SIMULATOR

Fits inside the Electron above the ULA – beside the Master RAM Board.

Uses the same display chip as the BBC – for 'rounded' characters.

Scanned by the ULA in Mode 4 – for fast screen updating and scrolling.

Includes Prestel terminal software – just add modem and RS423 adaptor

Compatible with screen poking software, e.g. Wordwise, Teletext HiMEM at 87C00 with Master Ram board.

(ROM expansion required to hold the Mode 7 ROM)

Price £49 – available as a kit (board, ROM, instructions – you buy other parts separately) £25

The unit is easily soldered in but a fitting service is available – £10
(Telephone before sending your Electron)

NEW

RS 423 CARTRIDGE

Uses software in Plus1 ROM, has same socket as BBC

Includes socket for 16K PROM/32k RAM

Price uncased £28.95 + £5 for case + £20 for 32k RAM

ROMPLUS-144

Sideways Rom Cartridge with Printer Buffer and Filing System

Fits into PLUS 1/Rombox Plus slot – holds 7 Roms plus 32k Ram

Romplus-144 costs just £39 + £20 for the 32k Ram

THE MODE 7 SIMULATOR ROM

Gives FULL Mode 7 display facilities simulated in Mode 2

Includes Prestel terminal software – just add modem and RS423 adaptor

Compatible with screen poking software, e.g. Wordwise, Teletext

HiMEM at 87C00 with Master Ram board

Price £25 – includes disc based screen editor/carousel software on 3.5" ADPS or Tape (for DFS transfer) – editor requires MRB

All prices inclusive of post, etc. Please allow 28 days delivery

JAF SYSTEMS – Committed to the Electron

9 Lon-y-Garwa, Caerphilly,
Mid-Glamorgan CF8 1NL.
Tel: 0222 887203

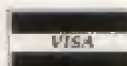
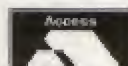


ELECTRON SPARES

Electron Computers & Software Pack.....	£79.95
Acorn Data Recorders	£24.99
Electron Mains Power Unit	£9.95
Loudspeakers (complete)	£1.50
Internal Powerboard	£7.50
Cassette Leads (7 Din - 3 Jacks) ..	£3.99
Printer Leads (Parallel)	£4.99
Complete Keyboard Assembly (inc keytops)	£12.99
Keyboard Key Switches (Pack of 5)	£1.99
Keytops (complete set)	£4.99
Cases (Top & Bottom Complete) ..	£7.50

GRACAR

Unit 7 Acacia Close
Leighton Buzzard
Tel: 0525 383074



Ian Webster dreamed up the superb 3D arcade game that'll have you hooked right from the word go

THE octopus race is being poisoned by nuclear waste and your task is to enter 10 cities and destroy plutonium balls – deadly pulsating spheres dumped by unscrupulous waste disposal firms – while avoiding the robot guard spheres that protect them.

You must beware of dangers below the waves and can jump only small distances – too great a drop and you'll die, or too great a height and you won't be able to climb it. And don't fall off the edge of the city walls or you'll be lost forever.

Help is at hand in the form of transporters and destimators. Stepping on to a transporter will instantly whizz you to a destination. However, the guards have a Plan B – if you clear all 10 cities of plutonium balls they bring out the spare set and make the cities invisible.

Each city except the first is accessed by a password, and this is given once the level

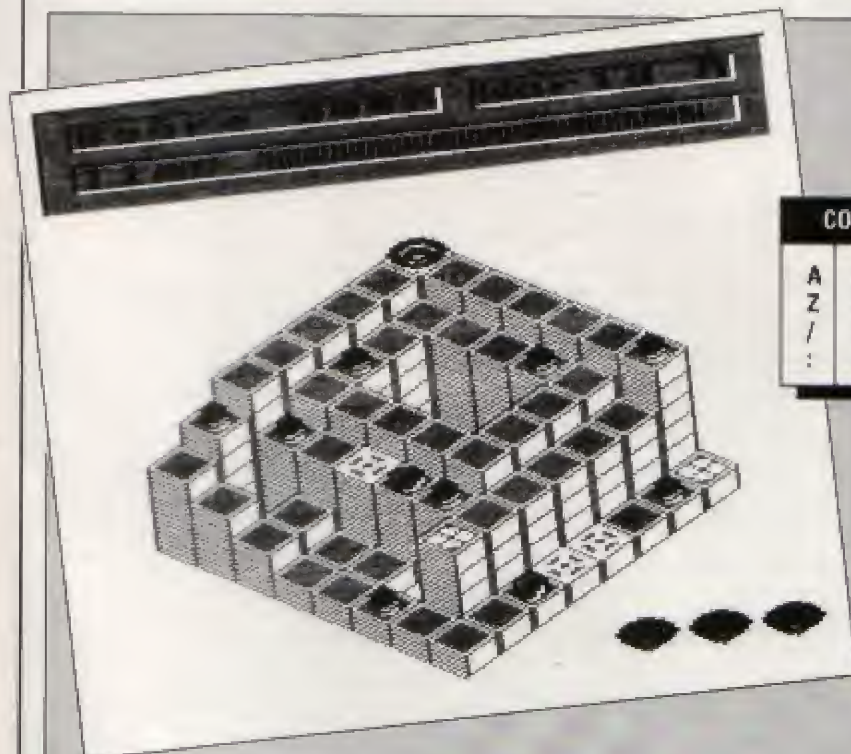
GREAT BALLS OF FIRE!

has been completed, so you can restart from the screen you were on last time without having to clear the preceding ones first. There's also a time limit in which to clear each level, so keep one eye on the timer at the top of the screen.

The game is played on a 3D landscape produced using the normal technique of plotting the blocks furthest away from the screen front and working forwards. The blocks are sprites EORed on to the screen, but as colours two and three are both set to the same colour they appear to be masked.

This technique saves graphic data and speed.

Final point: Octopuses travel in an odd way. They move in one direction until they hit a barrier, then choose a random direction and carry on.



CONTROLS

A Up left
Z Down left
/ Down Right
: Up right

```
10REM Octavia
20REM By Ian Webster
30REM (c) Electron User
40REM Don't Renumber!
50IF PAGE>5000 GOTO1590
60:
70MODE5:OSCLI"FX4,2":PROCinit:
HIX=100:REPEAT:PROCPAGE:PROCgame:
IF SX>HIX HIX=SX
80UNTIL0
90:
100DEFPROCrestore(lev):lev=lev
MOD 10:RESTORE(1350+lev*10):ENDPR
OC
110:
```

```
120DEFPROCgame:OSCLI"FX178":PRO
CTop:LX=3:PROCCls:SZ=0
130REPEAT:COLOUR129:COLOUR3:PRI
NITAB(18,1):CHRS(65+level):TAB(1,
3)"Time ":STRINGS(13,CHRS224):;GC
OLO,1:MOVE1200,903:DRAW1200,923:P
ROCREstore(level):PROCread:PROCdr
aw:PROCmove:level=level+1:UNTIL L
X=0:OSCLI"FX178,255":COLOUR3
140COLOUR128:PROCbc("GAME OVER"
,16):TIME=0:REPEATUNTILTIME>300:P
ROCCls:ENDPROC
150:
160DEFPROCco(AB,N,T):FORA=1TO N:
READ x,y:x=(y+9)-x:y=((y+14)*x)-H
```

```
(x,y):!&70=X*810+Y*8140+85800:1&7
2=AD:CALLsp:G(x,y):T:IF T=2 G(x,y
)=A+2
170IF T=3 T(A-1)=x:T1(A-1)=y:G(
x,y)=0
180NEXT:ENDPROC
190:
200DEFPROCded:SOUND1,1,100,6:50
UND1,1,80,6:SOUND1,1,50,7:a=FNad(
LX,LY):xx=(YX+9)-XX:yy=((YX+14)+X
Z)-H(LX,LY):b=xx*810+yy*8140+8580
0:!&70=a:!&72=84200+lof:CALLsp:!&
70=b:!&72=84200+of:CALLsp:a=b
210PROCd25:!&70=a:!&72=84200+of
:CALLsp
220!&70=a:!&72=84180:CALLsp:PRO
Cd25:!&70=a:!&72=84180:CALLsp:!&7
0=a:!&72=84000:CALLsp:PROCd25:!&7
0=a:!&72=84000:CALLsp:ENDPROC
230:
240DEFPROCw(x,y,x1,y1):x=x*64-8
:y=991-y*32:x1=x1*64+64:y1=1029-y
1*32:GCOLD,D:MOVEx1,y1:DRAWx1,y:0
RAWx,y:GCOLD,3:DRAWx,y1:DRAWx,y1
:ENDPROC
250:
260DEFNad(x,y):!&60=x:!&61=y:
&62=H(x,y):CALL&A00:!=&60
270:
280DEFPROCsp(AB,x,y):!&60=x:!&6
1=y:!&62=H(x,y):CALL&A00:!&70=!&6
0:!&72=AD:CALLsp:ENDPROC
290:
300DEFPROCmove:DX=0:PROClives:X
Z=SZ:YX=SYX:PROCsp(&4200,XX,YY):
of=0:REPEAT:TIME=0:LT=-100:PROCl
me:REPEAT:LX=XX:LY=YX:lof=of
310PROCtime:IF TIME>4000 DX=1:G
OTO490
320l=of:mf=of:mf=mi EOR &40:FORm=1T
O2:PROCmmon(m):IF (MX(m)=XX AND M
Y(m)=YX)&X=1
330NEXT:IF DX=1 GOTO 490
340IFINKEY-106 TX=TIME:REPEATUN
```

Turn to Page 32 ▶

◀ From Page 31

```

TIL INKEY=90:TIME=TX
350IF INKEY=73 X=X-1:of=840:G
OT0390
360IF INKEY=105 X=X+1:of=0:G
OT0390
370IF INKEY=78 Y=Y+1:of=0:GOT
0390
380IF INKEY=66 Y=Y-1:of=840
390PROCtime:IF INKEY=17:*FX210,1
400IF INKEY=82:*FX210
410IF LX=XX AND LY=YY AND Lof=0
+ UNTIL0
420IF XX<QORXX>7ORY>7 DZ=
1:GOTO490
430IF H(XX,YY)>H(LX,LY) XX=LX:Y
Y=LY:IF Lof=of UNTIL0
440IF H(LX,LY)=H(XX,YY)>1 OR H(
XX,YY)=0 OR TIME>4000 DZ=1:GOTO49
0
450PROCsp(84200+Lof,LX,LY):IF G
(XX,YY)=1 G(XX,YY)=0:PROCsp(84000
,XX,YY):SOUND1,1,120,3:SX=SX+10:P
ROCscore=MX-MY-1
460LX=XX:LY=YY:Lof=of
470PROCsp(84200+of,XX,YY):FORn=
1TO2:IF(XX=MX(n)ANDYY=MY(n))DZ=1
480NEXT:IF DZ=0:IF G(XX,YY)>2 L
of=of:LX=XX:LY=YY:T=G(XX,YY)-3:XX
=T(T):YY=T(T):PROCtrans
490UNTIL MX=0 OR DZ=1:IF DZ=1 P
ROCd25:PROCd25:PRINTTAB(1
,3)"Time ";STRING$(13,CHR$(224));L
X=LX-1:PROCd15:XX=SX:YY=SY:PR
OCcheck:of=0:PROCsp(84200,XX,YY):
GOTO1,1:MOVE1200,903:DRAW1200,923
500IF DZ=0 PROCdoneit
510DZ=0:UNTIL LX=0 OR MY=0:PROC
cls:ENDPROC
520:
530DEFPROCtop:VDU28,0,4,19,0,17
,129,12,26:MOVE0,863:DRAW0,1023:D
RAW1279,1023:GOTO0,0:MOVE1279,101
9:DRAW1279,863:PRINTTAB(1,1)"Scor
e 0000"TAB(12,1)"Ckey A"TAB(1,3)
"Time ";STRING$(13,CHR$(224));
540PROCw(1,1,10,1):PROCw(12,1,1
8,1):PROCw(1,3,18,3):GOTO0,1:MOVE
1200,903:DRAW1200,923:ENDPROC
550:
560DEFPROCclives:VDU28,14,29,19
,28,17,128,12,17,129,26:IF LX>D x=
14:y=28:FORa=1TO13:1870=x*810+y*8
140+85800:1872=84200:CALLsp:x=x+2
:NEXT:ENDPROC ELSE ENDPROC
570:
580DEFPROCread:READ C,C1:VDU19
,1,(C*ABS(LEVEL<10)):0,19,2,C1;0,1
9,3,C1;0:FORy=1TO8:READ AS:FORx=
1TO 8:H(X-1,Y-1)=VALMID$(AS,X,1)
:G(X-1,Y-1)=0:NEXT,:READ SX,SY:
ENDPROC
590:
600DEFPROCdraw:FORy=0 TO 7:x=y+
9:y=y+13:FORx=0TO7:1850=x*810+y*8
140+85800:1852=H(X,Y):CALLtower:x
=x-1:y=y+1:NEXT,
610READ N:MX=N:PROCc(84000,N,1)
:READ N:PROCc(84100,N,2):PROCc(84
140,N,3):FORa=1TO2:READ MX(A),MY
(A):md(A)=RND(4):PROCsp(84180,MX(A
),MY(A)):NEXT:mf=0:ENDPROC
620:
630DEFPROCscore:PRINTTAB(7,1):S
TRING$(4-LEN(STR$(SX)),"D");SX:EN
DPROC
640:
650DEFPROCtrans:FORa=10TO200ST
EP10:PROCsp(84200+Lof,LX,LY):SOUN
D1,1,A,1:of=0:PROCsp(84200,XX,YY)
:NEXT:ENDPROC
660:

```

```

670DEFPROCtime:IF TIME-LT<8 END
PROC
680LT=TIME-Q:TIME=5:GOTO1,1:MOV
E1200-Q,923:DRAW1200-Q,903:MOVE12
08-Q,923:DRAW1208-Q,903:ENDPROC
690:
700DEFPROCc(AS,Y):PRINTTAB(10-L
EN(AS)/2,Y):AS:=ENDPROC
710:
720DEFPROCbig(AS,X,Y):VDU31,X,Y
:FORa=1TOLEN(AS):1870=ASC(MID$(AS
,A,1)):XX=870:YY=0:AZ=8A:CALL&FFF
1:VDU23,255:FORa=871TO874:VDU3a,1
a:NEXT:VDU255,8,10,23,255:FORa=87
5TO878:VDU3a,1a:NEXT:VDU255,11:NE
XT:ENDPROC
730:
740DEFPROCbc(AS,Y):PROCbig(AS,1
0-LEN(AS)/2,Y):ENDPROC
750:
760DEFPROCdoneit:COLOUR12B:COLO
UR3:PROCc("City "+CHR$(65+LEVEL),
12):PROCc("Completed",14):COLOUR1
:PROCc("Entering City "+CHR$(66+L
evel),16)
770IF LEVEL<10 COLOUR3:PROCc("Y
our Password is:",18):PROCc(FNup(
LEVEL+1),20)
780FORa=150 TO 200 STEP5:SOUND1
,1,A,1:SOUND1,2,A,1:NEXT:TIME=0:R
EPEATUNTILTIME>300:COLOUR129:COLO
UR3:ENDPROC
790:
800DEFPROCd25:FORdel=1TO350:NEX
T:ENDPROC
810:
820DEFPROCmmon(A):LDCALX,y:x=MX
(A):y=MY(A):d=md(A):x=x+(d):y=y+
y(d)
830IF x<QORx>7ORY<QORY>7 PROCrse
t:ENDPROC
840IF G(x,y)=1 OR ABS(H(MX(A),M
Y(A))-H(x,y))>1 OR H(x,y)=0 PROCr
set:ENDPROC
850PROCsp(84180+mf,MX(A),MY(A)
)
860MX(A)=x:MY(A)=y:PROCsp(84180
+mf,x,y)
870IF RND(8)=1 md(A)=RND(4)
880ENDPROC
890:
900DEFPROCreset:md(A)=RND(4):x=M
X(A):y=MY(A):PROCsp(84180+mf,x,y)
:PROCsp(84180+mf,x,y):ENDPROC
910:
920DEFPROCcalcmc:FORa=0TO2STEP2
:PX=8A0D:OPT A:LOA861:ASLA:ASLA:
ASLA:ASLA:STA861:LOA860:ASLA:CLC:
ADC861:TAY:STA860:LDatable,Y:STA8
60:LDatable+1,Y:STA861:LDX862:BEQ
fin:loop:LDX860:SEC:SBC864:STA86
0:LDX861:SBC81:STA861:DEX:BNEloop
930.fin:LDX862:STA863:RTS
940.table:1:FORy=0TO7:FORx=0TO7
:x=(y+9)-x:yy=(y+14)+x:a=xx*81
0+yy*8140+85800:2PX=a:1(PX+1)=a:D
1V 256:PX=PX+2:NEXT,:NEXT:ENDPROC
950:
960DEFPROCcheck
970OX=0:FORn=1TO2:IF(SX=MX(n))A
NDSY=MY(n):OX=1
980NEXT:IF OX=1 Lmf=mf:mf=mf ED
R 840:FORn=1TO2:PROCmmon(n):NEXT:
GOTO970
990ENDPROC
1000:
1010DEFPROCcls:1862=88000:FORa=1
TO8:CALLcls:NEXT:ENDPROC
1020:
1030DEFPROCinit:VDU23,8202,0;0;0
;23,224,D,170,170,170,170,170,170
,0:RESTORE1510:FORa=84000 TO 8427
F STEP4:READAS:1A=EVALC("E"+AS):NE
XT

```

```

10400DM H(7,7),G(7,7),T(10),T(1
0),MX(2),MY(2),md(2),x(4),y(4):x(
1)=1:x(2)=-1:y(3)=1:y(4)=-1
1050ENVELOPE1,1,6,4,-5,1,8,5,0,0
,0,0,0,0
1060ENVELOPE4,2,-5,-3,2,2,4,8,0,
0,0,0,0,0
1070PROCmc
1080PROCcalcmc
1090ENDPROC
1100:
1110DEFPROCmc:FORa=0TO2STEP2:PY=
8900:COPTA
1120.sp:JSRp:JSRa:.lp:LDY#0:.L:LD
A(870),Y:EOR(872),Y:STA(870),Y:IN
Y:CPY#32:BNE1:RTS:.a:LDX870:CLC:A
DC#64:STA870:LDX871:ADC#1:STA871:
LDX872:CLC:ADC#20:STA872:LDX873:
ADC#0:STA873:RTS
1130.block:LDX#0:STA872:LDX#40:
STA873:STA875:LDX#60:STA874:JSRb
p:JSRba:JSRbp:JSRba:.bp:LDY#0:.L:
LDX(870),Y:AND(874),Y:ORA(872),Y:
STA(870),Y:SNY:CPY#32:BNE1:RTS
1140.ba:LDX870:CLC:ADC#64:STA870
:LDX871:ADC#1:STA871:LDX872:CLC:A
DC#20:STA872:LDX873:ADC#0:STA873
:LDX874:CLC:ADC#20:STA874:LDX875
:ADC#0:STA875:RTS
1150.tower:LDX#52:BNEok:RTS:.ok:
TAX:.lp:LDX#50:STA870:LDX#51:STA8
71:JSRblock:LDX#50:SEC:SBC#64:STA
850:LDX#51:SBC#1:STA851:DEX:BNElp
:RTS
1160.cls:LDX#840:STA860:LDX#85e:
STA861:LDX#34:.L:LDY#0:.L:LDX(86
0),Y:AND(862),Y:STA(860),Y:INY:BNE
12:INC#61:INC#63:DEX:BNE1:RTS:1:
NEXT:ENDPROC
1170:
1180DEFPROCpass(AS):BS="":FORa=1
TO LEN(AS):BS=BS+CHR$(ASC(MID$(AS
,a,1))+3):NEXT:RESTORE1470:a=0:Le
vel=0:REPEAT:READ AS:IF AS=BS Lev
el=0
1190a=a+1:UNTIL a=10:=Level
1200:
1210DEFPROCinput:BS="":REPEAT:AS=6
ETS:IF AS=CHR$(127 AND LEN(BS)>0 B
S=LEFT$(BS,LEN(BS)-1):VDU127
1220IF LEN(BS)<10 AND AS="A" AN
D AS<="I" BS=BS+AS:PRINT;AS;
1230UNTIL AS=CHR$(13)=BS
1240:
1250DEFPROCup(1):RESTORE1470:FORa=
1TO1:READ AS:NEXT:BS="":FORa=1 TO
LEN(AS):BS=BS+CHR$(ASC(MID$(AS,a
,1))+3):NEXT:BS=
1260:
1270DEFPROCtpage:VDU26,20,12,19
,1,5,D:DRAW1279,0:DRAW1279,1023:D
RAW0,1023:DRAW0,0:PROCbc("Octavie
",1):COLOUR1:PROCc("By Ian Webste
r '89",3):COLOUR2:PROCbc("The Cha
racters",4):1870=86210:CALLblock:
PROCbc("Block",4,8)
1280!870=86500:CALLblock:1870=86
500:1872=84100:CALLsp:PROCbig("Te
leport",4,11):!870=86990:CALLbloc
k:1870=86990:1872=84140:CALLsp:PR
OCbig("Destinator",4,14):!870=860
50:1872=84000:CALLsp:PROCbig("Plu
tonium Ball",4,17)
1290!870=86F00:1872=84100:CALLsp
:PROCbig("Robot",4,19):!870=87250
:1872=84200:CALLsp:PROCbig("Octav
ia (Hero)",4,21):COLOUR3:PROCbc("
Enter Password",24):PROCc("Return
for City A",26):COLOUR2:PROCc("W
igh Score :"+STR$(HX),30):*FX15
1300VDU31,5,28:COLOUR1:Level=FNc

```


pass(FNinput):COLOUR3:ENDPROC

1310:

1320REM Level data in following format:

1330REM col1,col2,grid(x8),xstart,ystart,no,gems,no,Trans start,Trahs end,monx,mony(x2)

1340:

1350DATA 4,7,66666654,65555403,65005422,65005411,65005411,65555401,64444441,11111111,0,0,8,6,0,3,1,5,1,1,4,5,5,7,5,0,6,1,7,3,5,3,3,7,4,7,0,0,6,6,0,7,4,3,5,7

1360DATA 5,7,77555101,77005101,60005111,50005101,55555101,11111101,1,00110001,11111111,7,0,8,2,0,0,2,6,2,5,4,0,5,2,5,2,7,7,2,5,0,4,4,0,0,3,0,4,3,3,4

1370DATA 1,7,77777777,77655331,76654331,55554331,54444321,53333321,52002221,51001111,0,0,8,1,0,6,0,6,1,7,1,5,4,1,6,7,6,0,7,2,7,0,4,7,1,4,2,2,5,0,6,6

1380DATA 4,6,77777777,76666666,76050005,74655554,76050003,76050002,76050001,76543211,1,1,9,6,0,4,1,7,1,1,3,6,3,7,4,0,5,3,6,5,7,1,7,7,0,0,5,0,3,3

1390DATA 2,7,77555555,76544441,75000411,64100041,63100041,62100041,60100031,65100021,0,0,8,1,7,7,0,2,1,0,3,6,3,1,5,7,6,6,7,3,0,5,7,5,2,7,1,3,0,7,0,0,4,1,1,3

1400DATA 1,7,77707777,66066061,55555111,40444111,33301111,22211011,00111001,11010111,0,0,9,2,2,4,0,5,2,8,5,3,7,6,1,4,4,7,3,3,1,3,6,5,2,3,1,4,0,0,7,0,1,7,6,4,4,2

1410DATA 1,7,07654321,77654321,6604321,55050321,44404321,33333321,22222221,11111111,7,7,7,4,7,6,2,5,5,4,1,1,3,2,1,1,6,6,3,3,7,7,1,4,0,1,4,0,7,3,3,3,1,0,0,1,4,4,3,3,4,4,0,3

1420DATA 5,2,77775555,77775555,77775555,77775555,33331111,33331111,1,33331111,33331111,7,0,15,5,4,6,4,7,4,4,5,5,6,5,7,3,4,6,5,6,6,7,6,4,7,5,7,6,7,7,8,4,0,6,1,5,1,5,3,0,4,2,5,3,4,3,6,0,0,1,0,0,7,0,1,3,3,3,2,2,3,4,4,5,3,3,4

1430DATA 2,7,77777707,60000000,55555555,00000004,33333333,20000000,0,10101011,11001101,5,0,7,0,0,0,2,3,2,7,3,2,4,6,6,3,6,5,4,2,6,4,7,4,5,7,7,7,3,4,6,2,5,6,7,0,2,6,7,0,5,2

1440DATA 4,7,77777777,76666666,76555555,76544444,76543333,76543222,76543210,76543201,0,0,11,7,0,0,7,4,1,5,4,2,6,4,4,7,5,6,6,2,3,2,2,4,2,9,7,3,6,3,5,3,4,3,3,3,4,3,5,3,6,3,7,7,7,7,7,7,7,4,7,7,7,7,7,7,7,7,5,3,6,6

1450:

1460REM Passwords

1470DATA LVDDF,DVLPYR,SUHXGH,IRXQGWLRQ,KDUL,VHGRQ,KHOLFQ,WUDQWRQ,URERW,GDQHHO

1480:

1490:

1500REM Sprite data

1510DATA 0,050201,8050201,FOFOFO7,00A0A08,FOFOFOE,0,00A0A08,00A0A08,00A0A0A,70FOFOF,50A050B,EOFOFDF,80A0A0B,9050B0B,1010101,102050A,0,50A050A,102050A,8080808,80C0AD

9,8040201,0,FFFFFFF,88CEE,88CEE

1515DATA 0,113377,0,FFFFFFF,113377,0,0,0,0,0,0,0,0

1520DATAEECC8800,FFFFFFF,0,EECC8800,0,77331100,77331100,FFFFFFF,0,0,77331100,77FFFF77,EECC8800,CEEEFFEE,0,0,0,0,1112377,0,C8E4EAE,0

1530DATA0,0,0,03010000,3010000,E030905,C080000,70C090A,0,C080000,103,0,509030E,103,A090C07,80C,80C,0,0,1000000

1540DATA0,E000303,0,70B0C0C,0,80D0000,1,0,303000E,0,C0C0007,0,8,0,0,11110000,44330000,77330099,EECC0000,EEEEFFFF,0,88880000,11,0,67FFFFFF,33,2E9F0FCF,CC,8B,0,0,0,44663311,FFFFB99,EE66CC88,DEFFFFF,0,0,0,0,7777FFFF,1123,2EAE98DF

1550DATA884C,0,0,33110000,33777733,CEFFFF33,8F7F5F8F,3FFFFFCC,1FEFAF0F,CC880000,CCEEEEC,1133,0,37EFCFF,3,CE7F3FFF,80C,88CC,0,33110000,33777733,FFFFFFF3,FFFFFFF,F,FFFFFCC,EEEEFFFF,CC880000,4C6E6EC,1133,0,37EFFFFF,3,CE3F9FCF,80C,88CC,0

1560:

1570REM Downloader

1580*FX18

1590PRINT"Downloading Software.

Please Wait..."

1600*KEYD *T.(MDX=PAGE-&EOD:FORI X=PAGE TO TOP STEP4:((IX-DX)=!IX: NEXT:PAGE=&EOD:((TOP-DX)=&FF0D)NO LD|RUN|N

1610*FX138,0,128

1620END

electron
USER

MAIL ORDER OFFERS

electron
USER

MAIL ORDER OFFERS

SAVE £3

TANK ATTACK

Tank Attack

The unique computerised board game

Tank Attack is a computerised board game for two, three or four players, where each one takes the role of a General commanding a country's Tank Corps of one or more armoured divisions.

Your objective is to capture the enemy headquarters, which will require the planned strategic deployment of your forces and regular fire duels between your own and enemy units.

Weather, morale, skill, judgement, planning foresight, careful management of rebuild and repair facilities and luck all play a part in deciding the result of each game.

Tank attack is one of those games you keep coming back to, and at the special offer price of only £19.99 is guaranteed to give you and your friends hours of action-packed excitement.

- Control a full division of tanks and armoured cars
- See all the fighting 'live' on your computer
- Superb board and fully detailed playing pieces
- Real time graphics
- Play as allies or enemies
- Suitable for all ages

RRP £12.99

OUR PRICE

£9.99

TO ORDER PLEASE USE THE FORM ON PAGE 45



TEL: 0276 72046
FAX: 0276 51427

Now available through PRES **Advanced Computer Products** range of software products

ADVANCED CONTROL PANEL

(20) /M/B/E/C £30 ex VAT £34.50 inc VAT

ACP is a front end control panel language providing a sophisticated yet friendly interface between user and computer for access to Languages, MOS functions and the users own file utility etc. Main features include pull down windows, simple to change MOS configure, floating point calculator, file manager, SW ROM's facilities (16K EPROM & FULL MANUAL)

"It's very easy to create an entire customised front end for your own use." - *Acorn User*, August 1987.

"ACP is much better than any of the other front end systems I've seen." - *Acorn User*, August 1987

"I can recommend it to anyone who wants easy access to the Electron's functions." - *Electron User*, August 1987.

ACP's main features are:-

- Pull down windows operate throughout
- Floating point calculator
- Users can create their own windows
- File manager
- Simple to change MOS's configure options
- Floating point calculator
- Easy entry to other languages

ADVANCED ELECTRON DFS E88

(14) /E/ASR/ £17.38 ex VAT £19.99 inc VAT

An alternative to the DFS on rom for Plus 3 and ABR users. This optional alternative DFS is designed for use in Side-ways RAM (ASR) and allows the user to operate a disc filing system & E88 when using the Plus 3 (in ADFS page would normally be &1088). The DFS is simply loaded using the software supplied with the ABR from disc.

(3.5" ADFS disc + manual)

ADVANCED 1770 DFS

3 versions ADM/C(11) - ADB(12) ADE(13)
£30.00 ex VAT £34.50 inc VAT

ACP have totally re-written the Acorn 1770 DFS, enhancing existing features & adding new ones. The result is a very fast and powerful disc filing system with the ability to operate in double density occupying both sides of a disc (640K). Automatic file relocation, improved file handling, 62 file catalogue and Sways RAM can be used as a fast RAM DISC.

(16K EPROM + comprehensive manual)

ADVANCED ELECTRON DFS

(05) /E/ £21.00 ex VAT £24.15 inc VAT

Electron & Plus 3 users... gain BBC compatibility by adding the Advanced Electron DFS (1770 DFS) this is the same disc filing system supplied with the BBC B+. Now you can produce and access (compatible) BBC disc based software. We can also supply 5.25" disc drives to add to your Plus 3 (inc. 2nd. drive adapter). "ACP has produced another superb ROM for the Electron". . . *Electron User* Feb '86

(supplied on 16K EPROM + DFS MANUAL)

DATABASE PUBLICATIONS

Now exclusively on 3.5" Disc

Electron User Jan.-Aug. monthly discs	
each @	£4.75
Fun School under 5's	£5.95
Fun School 5-8's	£5.95
Fun School 8-12's	£5.95
Magic Sword	£6.95
10 Best Educational Vol. II	£6.95
Classic Arcade Games	£5.95
Arcade Games Creator	£5.95
Nursery Rhymes	£6.95
10 of Best Vol. 1	£6.95
10 of Best Vol. 2	£6.95
10 of Best Vol. 3	£6.95
10 of Best Vol. 4	£6.95
Classic Card & Board Games Vol. I	£7.95
Classic Card & Board Games Vol. II	£7.95
E.U. August 87 Disc containing Printer	
Driver	£4.75
5.25" Discs	
Fun School II	£11.95
Arcade Game Creator	£5.95
Knitwear Designer	£9.95

ADVANCED DISC TOOLKIT

(01) /M/B/E/C £30 ex VAT £34.50 inc VAT

Any Acorn user including Master, BBC B+, Electron, DFS, 1770 DFS, ADFS, 2nd & co-processors A.C.P.'s BEST SELLING product containing over 30 commands inc.: - powerful memory & disc editor, search memory/disc, basic, catalogue/unplug ROMs, load/run programs below page, automatic menu, file transfer (inc. locked cassette files), ADFS utils etc, etc ("It's superb". . . Database Pubs. - "A top-class toolkit - I have no hesitation in recommending it. . . *Acorn User* Nov. 86)

(16K EPROM & FULL MANUAL)

ADVANCED DISC INVESTIGATOR

(06) /M/B/E/C £25 ex VAT £28.75 inc VAT

A very powerful Disc utility for standard & non-standard discs. Backup most protected discs, edit any type of non-standard disc, check & repair faulty tracks, create new disc formats, copy 40 track discs to 80 track discs, verify two non-standard discs.

("ADI features an extremely comprehensive sector editor, and one of the finest I've seen". . . *Tubelink* on Prestel)

(supplied on 16K EPROM + manual)

PRES-ADVANCED FILE MANAGER

The ultimate 'front-end' for ADFS and DFS includes:

- Menu - infinitely expandable
- Delete - deletes any number of files
- Rename - rename multiple files using wildcards
- Copy - extremely comprehensive file copier

AFM has four distinct modes:

MENU - allows browsing through the files and directories on a disc. Files are started from a menu of up to 7 options chosen for a selected ROM. Loaders are provided for Basic, The Basic Editor, View, ViewSheet, ViewStore, ViewSpell, Edit, Word-wise (+) and InterWord. This list can be expanded infinitely using an Acorn-approved OSWORD call. . . full details and examples in the manual.

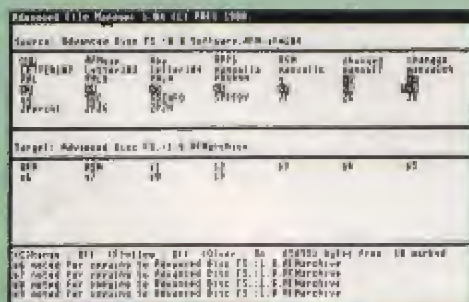
DELETE - allows files to be marked and then deleted with one keystroke.

RENAME - allows one or more files to be marked and then renamed using a wildcard name, in one which varies with each file renamed. Thus you could rename s1, s2 and s3 to be s1_old, s2_old, and s3_old in one operation. . . and that's only the beginning! As well as using the whole of the original name you can also pick out individual characters to form part of the new name.

COPY - the strongest feature of AFM. It is a two stage copy routine. With both source and target directories shown on screen the files to be copied are marked. Once all the files have been marked copying is started and the computer can be left to get on with it!

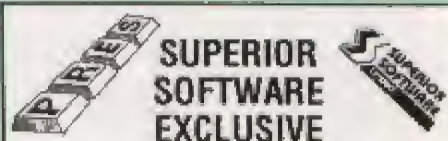
Large files can be split across several disks, and recombined. As much as possible of the computer's memory is used for copying files, including unused parts of shadow screen memory, sideways ram banks (inc. AP7), ram cartridges (inc. ABR(32K) and AOR (256K)), tube memory (up to 61K), B+ paged ram (12K) and unused parts of the Slogger Master Ramboard (Electron).

Comprehensive error trapping and recovery is provided, so a copying run will rarely have to be aborted unfinished! And there's much, much more. . .



Screen picture shows AFM in Copy mode on Master Turbo

AFM follows the PRES 'Master Plan' of upwards compatibility - it runs on Electron, BBC B, B+, B+128, Master 128 and Compact, with Second/Co-processors and Acorn-compatible versions of DFS & ADFS.
£25 ex VAT £28.75 inc VAT



ONLY AVAILABLE THROUGH PRES
LOW INTRODUCTORY PRICES ON DISCS

5.25" versions £6.95

3.5" versions £7.95

	5.25" DFS	3.5" ADFS
Life of Repton	✓	
Spellbinder	✓	
Bonecruncher	✓	
Elixir	✓	✓
Play It Again Sam	✓	✓
(Contains Citadel, Thrust, Strikers Run, Ravenskull)		
Palace of Majic	✓	✓
Superior Col. Vol. 3		✓
(Contains Synchron, Repton, Repton II, Karate Combat, Deathstar, Smash & Grab & Overdrive)		
Codename Droid		✓
Crazy Rider		✓

Exp date _____ (Ref E11)



Heading for the century

Tony Leah reporting from one of the most successful Electron software companies

FOR six years the name Superior Software has stood for quality and quantity in the Electron games marketplace – a sector of UK computing that hasn't been overblessed with choice in entertainment, particularly in recent times.

Surprising, therefore, that the software house that has supported the Electron since the machine's earliest days has never been paid its due in a computer magazine until now.

While packing for his firm's recent relocation, from Leeds to Brigg in South Humberside, managing director Richard Hanson found time to talk about Superior Software's history and its plans for the

future. The company's long absence from the computer media spotlight may be explained by Richard Hanson's quiet personality and the fact that he likes his products to speak for themselves.

Few *Electron User* readers can be unaware of the enormous range of titles that Superior has issued for their machine – starting with Centibug in 1983 and running through to this year's Christmas releases.

The number of games to come from the Superior Software stable is now approaching the 100 mark – most of them available for the Electron. It's a total that would have been unthinkable when Richard Hanson began programming on the Acorn Atom 10 years ago.

He first became involved with computers during a mathematics degree course at Leeds University in the late 1970s. By the end of his first year he realised micros had become more interesting to him than figures, and he switched to a course in computer science, learning languages like Basic, Algol and Fortran before graduating with a BSc.

The university didn't have any personal computers in those days, so to further his new-found hobby of programming, Richard bought himself an Acorn Atom.

The machine had just been launched and Richard describes it as "the best cheap computer around at that time – certainly it was the most useful, as the Sinclair machines with their tacky keyboards were very limited in their performance".

Richard wrote about 20 programs on the Atom – all eventually published by Micropower – ranging from a space invaders game, which was the first thing he had written in machine code, to a home budgets program and a star-tracking program for amateur astronomers.

When the BBC Micro arrived on the scene Richard wrote a further six Micropower programs of various types for the new machine, among them World Geography, which until very recently was still earning him royalties.

In mid-1982, at the end of his degree course, Richard decided to set up a partnership with fellow Micropower author John Dyson and Superior Software was born. By the autumn of 1982 the pair had released their first four products – Galaxy Birds, Space Fighter and Centibug written by Richard and Invaders written by John.

"It went very nicely right from the start", recalls Richard. "We had each put in £50 to start the company and I think we'd only spent about £20 of it before the money from sales started to roll in".

In 1983 came Alien Dropout and Road Racer from Richard, Froggy and Hunchback from John. Early releases typically sold



Richard and Steve Hanson



Games tester David Blackburn checks out Network by Peter Scott for inclusion in a new *Electron* compilation

about 6 to 7,000 copies, but Hunchback – with sales to date of 26,000 – propelled Superior into the forefront of BBC Micro software suppliers.

The arrival soon afterwards of the Electron sparked a feverish burst of activity as the firm's BBC Micro games were converted to run on the exciting new machine.

It is worth recording that a notable exception to conversion of the BBC Micro software stock was Road Racer, due largely to hardware scrolling limitations which ended hopes of several existing games being converted for the Electron. "Road Racer is an example of a game that was never converted. It could have been with a lot of effort, but it would have meant restructuring it and not using the hardware scrolling", said Richard.

"But by and large the games that could be were converted very simply, very few changes needing to be made. They tended to fall into one of two categories, those you could convert easily and those you couldn't without a lot of effort".

As a result of this, several games in addition to Road Racer that might have been popular with owners of the new machine didn't receive the Electron treatment. "At that time we weren't sure if it was worth the investment, and by the time the machine had established itself the games were too old to convert", said Richard.

In the event Centibug became the first Electron conversion, closely followed by Alien Dropout, Invaders and Fruit Machine which was the first game written for Superior Software by an outsider.

Because Richard Hanson retained the rights to non-BBC Micro versions of the Micropower products World Geography, Constellation and and Disassembler, these were also converted for the Electron.

Also in the shops around this time was Overdrive, a car racing simulation for the BBC Micro written by Peter Johnson and later converted for the Electron. It was destined to become Superior's most successful game with nearly 40,000 copies sold across both BBC Micro and Electron versions.

Interestingly the Electron version of Overdrive eventually outsold the BBC Micro version by more than two to one. Richard Hanson explains: "I think the main reason was that it was until recently the only racing

car game for the Electron whereas it had a lot of competition in the BBC Micro sector".

In fact Overdrive very nearly missed being an Electron best-seller. "It took a great deal of persuasion to get Peter Johnson to perform the conversion", recalls Richard Hanson. "Yet it was a very simple job – probably only about a day's work – and with royalties from Electron version sales of around 28,000 he did very nicely out of it in the end".

Towards the close of 1983 business had grown to such an extent that more hands were needed at the pump. John Dyson, unwilling to leave his job as a technician with BBC TV Leeds, was bought out and Richard's older brother Steve – a globe-trotting food scientist up until that time – joined the firm. His arrival marked the start of a period of major expansion for Superior Software, a move into new premises – Richard and John had been running the business from their own homes – and ongoing success in the Electron marketplace.

During its long history Superior has occasionally dipped its toe in the water of other computer makes – though never to any great effect. Its first attempt to break out of the BBC/Electron market came at the end of 1984 when seven titles were released for the C64.

"They didn't sell particularly well", said Richard. "We did a little better the next time around, and some of our releases for other machines have done quite nicely while others have not been so well received. Overall there has been little encouragement to move our major effort away from the Acorn

marketplace".

Tempest, released for the BBC Micro and Electron early in 1985, is regarded as something of a milestone for Superior because for the first time it inspired full page, four colour advertising. And it marked the point when the price of Superior games for the Electron went up for the first time – from £7.95 to £9.95.

In the summer of the same year came Repton, another tremendous success, swiftly followed by Deathstar. Christmas saw the release of Repton 2, Citadel and the software synthesiser program, Speech.

With sales of 35,000, Repton 2 is the best-selling of the famous series of captivating reptilian adventures. Counting Repton 3 and the three sets of additional screens, the series has so far notched up total sales of 120,000.

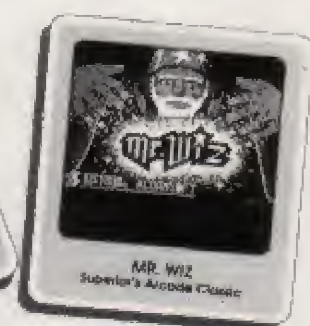
Mid-1986 saw another major event take place – an agreement with Acorn to take over publication of Acornsoft games titles. These included the mega hit Elite – which has since enjoyed sales of 17,500 in its Superior Software version – a repackaged Revs including Revs 4 Tracks, and two Acornsoft Hits compilations.

Christmas that year marked the release of Repton 3, Ravenskull and Strykers Run. "Although Repton 3 did not sell as well as its immediate predecessor, all three titles were big successes which helped us to expand the company further", said Richard.

At the start of 1987 Superior produced the

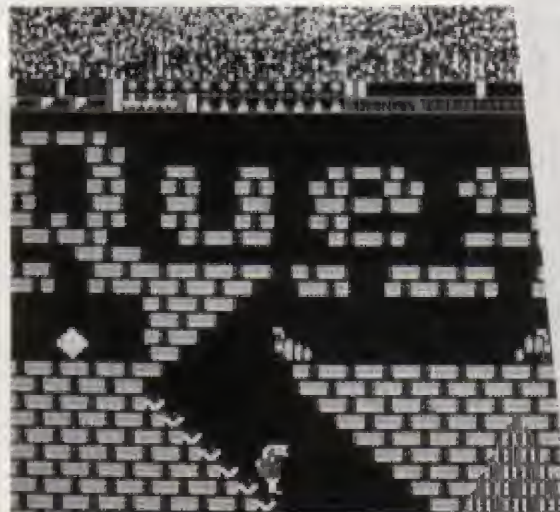
Turn to Page 38 ▶

PLAY IT AGAIN SAM



SUPERIOR SOFTWARE
Limited

ACORNSOFT



BBC Micro
Com

◀ From Page 37

first three of its famous Superior Collection series – two for the BBC Micro and one for the Electron.

"It was a year for consolidating our success", said Richard Hanson. "One notable event, however, was our first game for the Archimedes – Zarch by Elite co-author David Braben, the most skilful author I've ever come across".

Christmas saw the release of Life of Repton and the first Play It Again Sam compilation, both hits.

"Since the start, the Sam series compilations have always contained four titles, initially our own but more recently including games from other software houses", said Richard. "Play It Again Sam has been a great success story – we're now up to version 10 with versions 11 and 12 lined up for release before Christmas this year".

However, Richard Hanson notes that Electron disc version sales have not always come up to expectations. "Superior Collection 3 and the first Play It Again Sam have been the only Electron disc products that have sold really well", he said.

Last year Superior broke more new ground, for the first time approaching a third party developer for the rights to license a title. The result was a BBC Micro and Electron version of Palace Software's hit release Barbarian, followed soon afterwards by Last Ninja from Activision and A Question of Sport from Elite Systems.

"The move into licensing has been a success", said Richard, "though it hasn't always been plain sailing. We also tried to get permission from US Gold to produce a BBC Micro and Electron version of Outrun but couldn't pull off the deal. We'd love to produce many more conversions under licence like Barbarian and Last Ninja and the reason why we haven't done so is not for the want of trying on our part".

Superior's biggest sellers at Christmas were Exile – the result of a two-year project by Jeremy Smith and Peter Irvin – and Last Ninja.

During 1989 Superior has been busily adding to its Play It Again Sam series, as well as releasing licensed titles Barbarian II



from Palace Software, Predator from Activision and Ballistix from Psygnosis. "In fact Superior Soccer, which has only just been released, is our first original program in quite a while and we expect it to do very well", said Richard. "This isn't the result of any deliberate policy – it's just the way things have fallen into place this year".

Superior produced some titles for the Master Compact as part of its original deal with Acorn, its products since Repton have been BBC Master compatible, and it has since gone on to release programs for the Archimedes. "Sales of our Archimedes products have not been good overall, Zarch being the exception", said Richard. "Conqueror and Archimedes Repton 3 have been disappointing when compared to the sales we've achieved for BBC Micro and

Electron games.

Has Superior ever considered producing "serious" software for the Electron? "Not really", says Richard. "Our experience is with games, a sector of the marketplace which is still very profitable for us, so there is no great urge to branch out into unknown territory.

"Having said that, we have just formed a second company called Superior Microcomputing which may lead to other projects within the computer field.

"Although our software sales have gradually declined over the past year or two from their peak, it has been a slow decline and nothing either sudden or damaging has taken place.

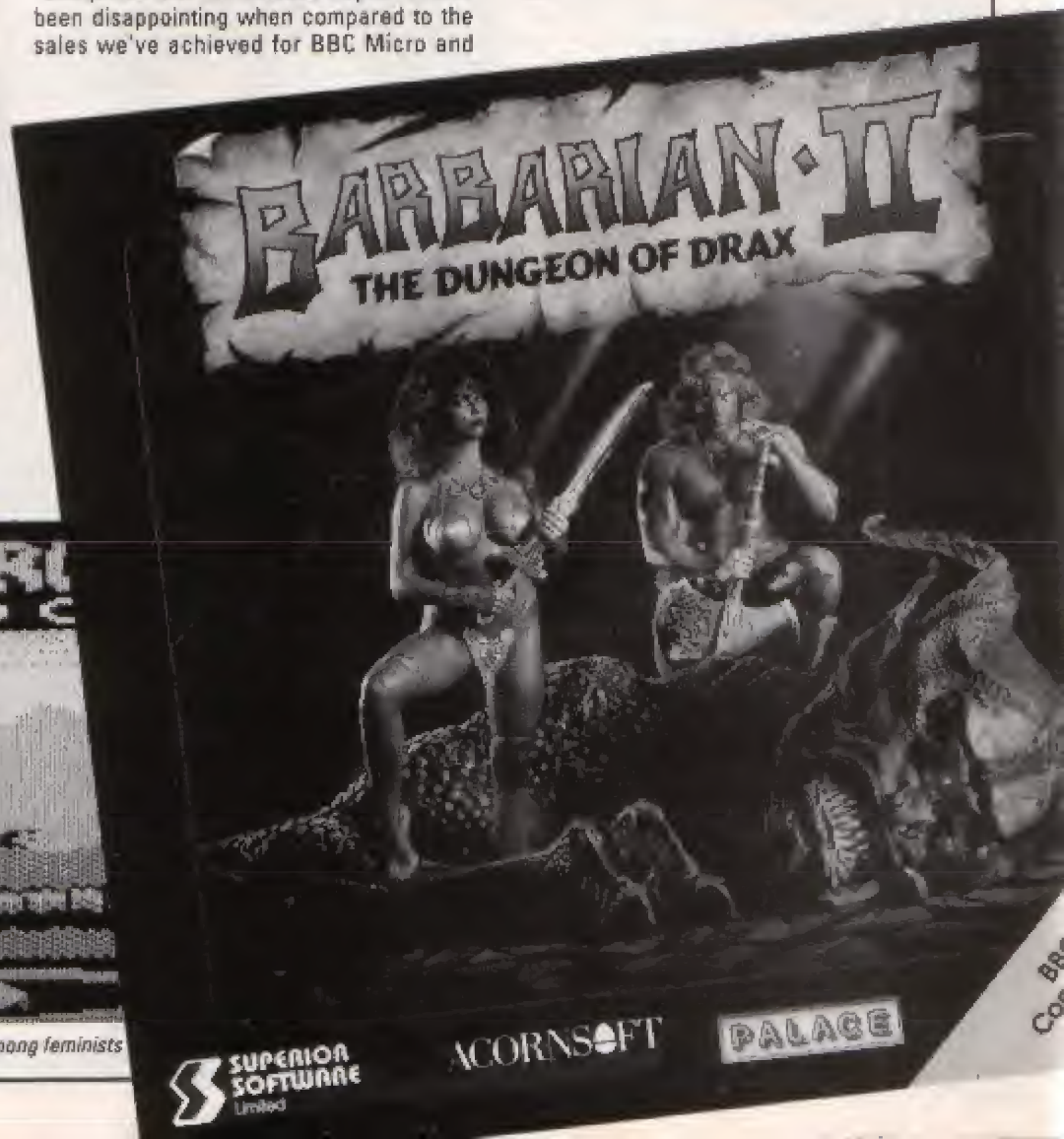
"There remains an enormous BBC Micro and Electron user base and I feel there is still the market to sell up to 30,000 copies of a really good product. Even during the past two years sales of our best titles have topped 20,000.

"We've dabbled with software for Amstrad, Commodore, Spectrum and Amiga machines, but the Acorn market remains the best for us.

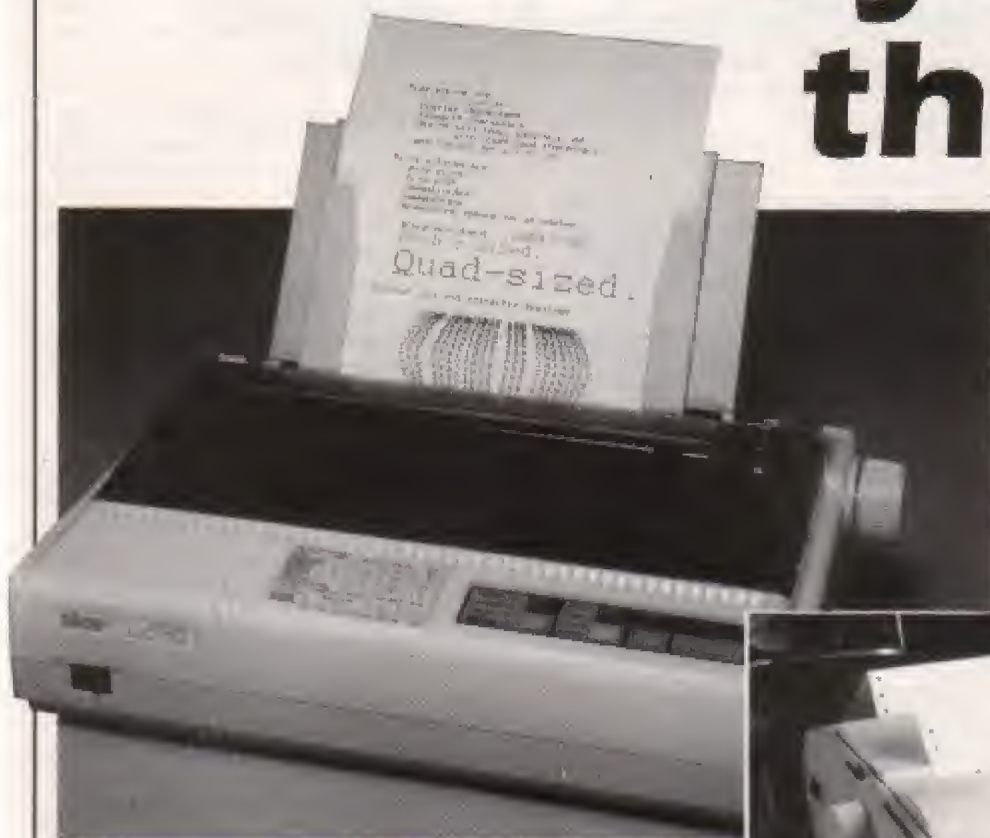
"Our commitment to it will be seen again this Christmas by which time we'll have Superior Soccer and at least two other original games in the shops. I don't even contemplate a day when Superior Software doesn't have at least three or four new Electron games in the pipeline – if that day ever comes I'm sure it will be a long way off".



Scantily clad Maria Whittaker caused an uprour among feminists



Always read the fine print



**Howard Roberts advises
on how to choose the
printer best suited for
your particular purpose**



THE second peripheral many Electron users will consider buying to upgrade their system is a printer. The first, of course, is a Plus 1, without which you can't use a printer. Now the range of printers available for home computer systems is vast and rather daunting.

What I aim to do is not to decide which one is best for all Electron users – that would be impossible with the enormous range of applications for which the micro is being used – but to help you decide which one is best for you.

Printers fall into two main categories, the impact and image varieties. These are split into further subgroups, each having different methods of output.

Dot matrix printers: These produce an image on the paper by imposing a sequence of dots made by small pins in the printhead which are fired forward into a ribbon by a small magnetic field.

When the pins strike the ribbon they leave marks on the paper. The pins are usually arranged in one of two configurations: Nine pins arranged vertically, or 24 pins arranged in two offset lines of 12. With 24 pins packed into the same space as nine, you get much better quality and definition.

Within the dot matrix printer market one manufacturer, Epson, has set an industry standard all others have to follow if their product is to be successful. Therefore most printers are either Epson FX (nine pin) or Epson LQ (24 pin) compatible.

Daisywheel printers: Each character has a place on a "petal" attached to a central hub – hence the daisy name. When the printer is turned on it finds a reference point and is then able to work out where each letter is on the wheel.

When the printer receives a letter from the computer it turns the wheel to the correct point and a hammer pushes the petal into the ribbon, leaving an impression on the paper.

Daisywheel printers also have an industry standard to which they should conform – Diablo 630.

Image printers: These work in a completely different way to their impact cousins, building up the page in ram before transferring it to the paper. They are often referred to as page printers because they can only print a page at a time. Such machines are almost exclusively of the laser variety and are beyond the Electron's scope.

Two new types of printer are slowly edging their way into the market, the inkjet and liquid crystal machines.

Inkjet printers such as the Hewlett-Packard Deskjet or the Integrex Colourjet 132 work by heating up a nozzle which then fires a spot of ink at the paper.

They are still new on the market and as yet conform to no obvious standard. I have

come across inkjets that emulate Epson, Hewlett-Packard and IBM printers and some that use their own codes.

Liquid crystal printers are at the forefront of technology and borrow heavily from that used in their laser brothers. Again they are really beyond the Electron's scope.

When choosing a printer the first question to ask yourself is "What am I going to use it for?"

Make a list of "musts", include things like quality of print, output speed and price. Look at the pros and cons of each type below and see which one matches your requirements most closely.

Dot matrix and inkjet

For: Fairly cheap, versatile, can print text or graphics with equal ease, very common so virtually all software can drive them, available in wide carriage versions, moderately fast at low quality output, wide range of font sizes and styles, can use continuous or single sheets of paper, colour printing available.

Against: Noisy, text and graphics of poor quality compared to laser printers, very slow when outputting graphics, feeders for single sheets are extra, software drivers for

Turn to Page 40 ►

◀ From Page 39

colour and 24 pin printers very rare, areas of black or colour on paper can leave large amount of wet ink which can bleed or crinkle the paper.

Daisywheel

For: Superb quality text, sometimes better than laser printers, wide range of daisywheels containing typesets, cheapest way to get high quality text, can use cut sheet or continuous stationery.

Against: Extremely noisy, very slow, change of font or typeface available only through changing daisywheel, if petals on wheel is damaged whole wheel must be replaced, cut sheet feeders costly and virtually a necessity for long unattended print runs, incapable of printing graphics, colour not available except for very few models.

Running costs

As well as thinking about what type of printer to buy, pay some consideration to what you will have to do once you've got it. Will it be expensive to run? Are ribbons widely available? How much do extras like sheet feeders and font cartridges cost? Will software you buy in the future be capable of driving it?

For impact printers you have to think of

consumables like ribbons and sheet feeders. There are basically two types of ribbon, nylon and carbon. When a pin or a daisywheel petal hits a nylon ribbon it tends to splat slightly giving the letter a very slightly ragged edge. With a carbon ribbon the image is clean cut.

With a sheet feeder – used mainly for extended mailshots – you have to find out how many sheets it can hold, whether it can cope with envelopes or whether you have to print labels and stick them on the envelopes later.

Also consider whether it is easy to change the ribbons. Is there an authorised dealer near you who will be able to repair the printer?

What is the manufacturer's reliability record? Is the manual translated properly or is it Japlish?

Finally we come to which type of printer is best for you. I have listed some of the major applications of the Electron and the types of printer best suited:

Word processing: If you just use your word processor to knock off a quick letter to a friend or a magazine then a dot matrix printer with an NLQ (near letter quality) or LQ (letter quality) option will be quite good enough.

If however, you need mailshots or regularly write important documents, you should definitely consider a daisywheel printer.

Spreadsheets: Spreadsheets often contain huge swathes of figures and the only way to print them is to use a very small font on a very wide piece of paper. If you require this and a facility to print graphs from your figures, you should look at dot matrix.

If presentation is important look for a laser printer with the ability to print a very small font in landscape.

Painting packages: If your pictures include colour and you want a true representation there is really only one choice and that is dot matrix.

Colour inkjet drivers are virtually non-existent in the most popular art packages. However this may change as more people buy this sort of machine.

If you require high quality output you should seriously consider a good 24 pin dot matrix printer with a wide carriage.

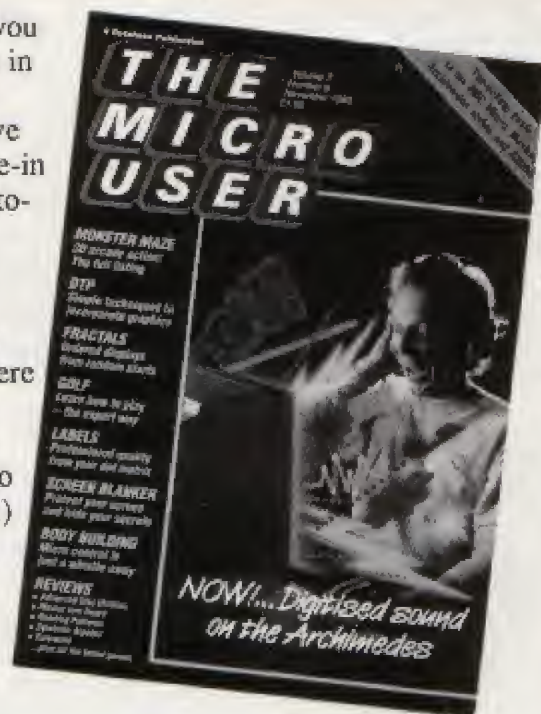
Accounts: All the accounts packages I have seen use predesigned continuous stationery for use with a dot matrix or daisywheel printer.

Programming: If you are a programmer and need a listing of your program you want it as quickly as possible. You don't need high quality and you want it all in one long listing and not on separate sheets. Have a look at dot matrix printers capable of high speeds using continuous stationery.

Are YOU on the Acorn upgrade?

Every month *The Micro User* keeps you in touch with the latest developments in the ever-growing world of Acorn micros. This colourful and informative magazine is packed with articles, type-in programs, definitive reviews and up-to-the-minute news covering the entire BBC Micro and Archimedes range. Whether you intend to upgrade to another Acorn machine or stick with your Electron, there's something in here for you – many of the programs and reviews are suitable for the Electron. With a subscription you can choose to receive a tape or disc (5.25in or 3.5in) which includes all the major listings.

Annual subscription:
£23 (tape or 5.25in disc)
£27 (3.5in disc)



DATABASE PUBLICATIONS

Mail Order Service: FREEPOST, Ellesmere Post, South Wirral L65 3EB.

Credit card orders (24 hr): Tel 051-357 2961 • Fax 051-357 2813 • MicroLink MAG001

MICRO MESSAGES

No joystick for an Aviator

AS a subscriber to your excellent magazine, a veteran Electron user and add-on collector, I am turning to you in the hope that you will be able to help me solve a problem that has had me baffled for months. My Electron is fitted with a Slogger Master Ram Board and it was my good fortune to come across Acornsoft's Aviator in a sale recently.

The program runs perfectly in Turbo mode yet it paints a distracting flashing cursor on the screen while the game is running. Worse still, the toggle between keyboard and joystick is the Tab key, which is not present on the Electron. Nothing I have yet tried succeeds in selecting the joystick option.

I can live with the flashing cursor but would enjoy the game a whole lot more if I could use the joystick. How can this be done? — Ewan Haggarty, Locking, Weston-Super-Mare.

● Pressing Control+I generates the same Ascii code as the BBC Micro's Tab key, so if the program is using INKEY\$ to read the keyboard you should be able to select the joysticks. However, if a negative INKEY is used to test for the Tab key then there isn't any way round the problem and you're stuck with the keyboard.

...or for the Elite player

I HAVE a Commander 3 interface with utility tape for Atari type joystick but my Quickshot 2 joystick will not work with Elite.

I was wondering if you could tell me if there is any way I can use my joystick with this game? — Ian Robinson, Stoke-on-Trent, Staffordshire.

● Unfortunately, Elite can't be made to work with joysticks.

Upgrading in style

MY trusty four-year-old Electron has only just been expanded. Until now it has seen only a small collection of games played with a Quickshot 2 joystick through a Bud F-Byte interface. Both have passed their peak and so I have upgraded in style.

My new set-up includes a Rombox Plus with Slogger's printer and Stargraph roms, the expansion rom 2.0, Panasonic KX-P1081

printer (recommended by you) and Slogger's joystick interface with a clear Competition Pro joystick.

The only product which hasn't thoroughly pleased me has been the joystick interface. This hasn't worked with as many games as I thought it would. I knew there would be some that didn't work, but some of my favourites, Bugblaster, Last Ninja, Beach Head and Way of the Exploding Fist among many others, just didn't load. Could you please tell me why? — Lawrence Dean, Birmingham.

● Most games aren't designed to work with joysticks, so the majority of interfaces require a software patch to be loaded before running the game. Some games use all the available memory and crash when they overwrite the joystick code, others reset the keyboard vector which is intercepted by the joystick software, so disabling it.

Steve Davis speaks up

I HAVE just read your review of Play it Again Sam 9. You say that there is no sound on Steve Davis' Snooker. On my version if you press S, hey presto, the sound comes on. — Lee Sowden, Tiverton, Devon.

Set up to go for a scroll

I WAS gobbling my daily dose of sweets in my local newsagent and there on the shelf was the amazing Electron User magazine. It has the power to keep me reading for hours — it has the best game reviews and is the best magazine ever. I think that's enough grovelling, so I'll get to the point.

I enjoy programming on the Electron, I'm writing games all the time but there are always little details I can't put into my programs to polish them up. Firstly, how do you get messages to scroll neatly across the screen?

Is it possible to have a scrolling screen, if

so how? What is the best way to create a well detailed still picture like on title pages? And finally, is it possible to use more than the 32 character squares available. — Tom Muschamd, Old Down, Tockington, Avon.

● Many scrolling routines have been published over the past few years. The most recent was Paul Clarke's in our January 1989 issue which demonstrated how to scroll the screen one pixel at a time. Here is a short routine to scroll text across the screen:

```
10 REM Text Scroller
20 MODE 6
30 PRINT TAB(0,5);
40 INPUT "Enter message:";m$
50 VDU-23,1,0;0;0;0;
60 m$=STRING$(20," ") + m$
70 REPEAT
80 PRINT TAB(0,10);m$
90 t$=LEFT$(m$,1)
00 m$=MID$(m$,2)+t$
10 UNTIL 0
```

Pictures and title screens can be created using an art package such as Elkpaint published in last month's Electron User.

We're not sure what you mean by being able to use more than the 32 character squares available. Do you mean user defined characters? There is normally a limit of 32, but you can increase this with *FX20.

Unfortunately, this uses quite a lot of memory and if you want to completely redefine the character set with *FX20,6 you'll have to increase PAGE by &600.

Playing with the jet set

WE bought Jet Set Willy from a market and played it many times. Loading was no problem. We stopped using the computer completely over the summer and when I loaded Jet Set Willy after the summer it wouldn't load. I've tried lots of times, even using dif-

Turn to Page 42 ►

◀ From Page 41

ferent tape recorders, but every time it reaches 4C on the screen 4D appears next to it and then up comes the dreaded words Data? Rewind tape.

Please can you help me? – **Andy Duncan, Camberley, Surrey.**

● Normally when games won't load simply adjusting the tone and volume controls cures the problem. However, in your case, it sounds as though the tape has developed a fault. Contact the software company producing the game and ask for a replacement. There may be a small charge.

Pen pals please

It is about three years since I bought my Acorn Electron in Ulm – about half way between Munich and Stuttgart, West Germany.

It was one of the last machines sold. Until now it has been impossible to find any other Electron computer user in Germany – the salesman in the computer shop in Ulm didn't have any addresses.

I am now searching for an English Electron user who would like to help me solve my computer problems and improve my English. I will try to help with their problems and if you know a little German I will help with that too. – **Oliver Debus, Muehlberg 18, D-8871 Harthausen, West Germany.**

★ ★ ★

I HAVE been reading your magazine for more than three years and I would like to congratulate you for producing an excellent publication.

I own an Electron with an Advanced Plus 1 Advanced Plus 3 and View word processor cartridge. I also have the Arcade Game Creator on 3.5in disc and many games on cassette.

My hobby is computer programming and I would like to contact Electron users who understand assembly language programming and machine code. – **Paul Mathews, Rydal, Coronation Road, Rodborough, Stroud, Gloucestershire.**

Pascal turns up at a show

I READ with interest D. Auderson's letter in July's issue of Electron User concerning the search for a Pascal cartridge. I am currently using Turbo Pascal at college and wanted a version of Pascal to use at home.

I have not found the complete ISO-Pascal Acornsoft package, but at a recent computer show – which contained the odd item relevant to the Electron user – we picked up the main manual from one stand and the two rom chips from Slogger for £7.50 each. So it should be possible to get

All programs printed in this issue are exact reproductions of listings taken from running programs which have been thoroughly tested.

However, on the very rare occasions that mistakes may occur corrections will be published as a program they will almost certainly be the result of your own typing mistakes.

Unfortunately we can no longer answer personal programming queries concerning these mistakes. Of course, letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in the mail pages.

the two chips and a blank cartridge without too much trouble.

Is there anyone who, like me, feels that the Music 5000 system should be opened up to the rest of the music world by a Midi interface? If so please write to Hybrid Technology or Pres and let them know. – **Ralph Swallow, Southampton.**

Mysterious symbol

I WOULD be grateful if you could answer the following query: You published a simple tape to disc copying program in the September 1989 issue.

Could you please tell me what the symbol on line 150 is? It is the eighth symbol from the end, in between STR\$ and (1&3BE). – **Christopher Boots, Whyteleafe, Surrey.**

● The character is a tilde and is obtained by pressing Control and the left cursor key at the same time. It is used to force the Electron to output numbers in hexadecimal rather than decimal.

No disc upgrades

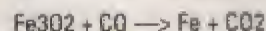
I HAVE exactly the same problem as J. Nunn (September 1989) with 5.25in discs. In answer to his query, no, the Impact Software discs are not upgraded versions. I bought Play it Again Sam 1 and experienced exactly the same problems as him.

I sent the disc back to Impact who kindly gave me a voucher as a replacement. Will the discs being brought out by Pres work on my set-up? I have an Electron with Rombox Plus, Pegasus 400 disc system, T2P3, MP-135 printer, NTQ and View.

In the September 1989 issue, A.R. Dunks wrote to Micro Messages with some improvements for Home Finance Manager.

Although it looks much better, I cannot get a hard copy on the printer, although I could before I added the improvements. Any suggestions?

The August issue included a program for chemical equations. It is excellent but the Oxidation Reduction Reaction.



has the wrong answer. It should be:



Thanks for a great magazine – and now also tape, which is very useful. Keep up the good work. I like the Adventures and Micro Messages pages best. – **Steven Coultas, Grimsby, South Humberside.**

● Home Finance Manager should still print out after the amendments. Check that you haven't accidentally deleted line 620, as this switches the printer on.

We have sent Julie Boswell back to school to brush up on her chemical equations.

The game discs from Pres should work on your system, but we can't say for sure until we have tried them – they are still being written.

Treasurer troubles

I HAVE fairly recently become the owner of an Electron with Slogger 64k Master Ram Board, Plus 1 and Plus 3 with 3.5in single sided disc drive. I am trying to improve the word processor output for my retirement jobs as a secretary/treasurer in charities.

When I realised the printer driver program by Ian Brown published in the August 1986 issue of Electron User was for a Centronics GLP printer, as mine is, I thought it would be the answer to my prayers.

Unfortunately, highlights 130 and 134 – italics and Elite print – do not work and there appear to be no appropriate codes in the command summary list in the printer manual.

Is there any way I can overcome this? Will an alternative setting of any of the DIP switch SW2 settings help? These are set as shown in the manual apart from number 2-7, the carriage return.

The fact that these highlights are not available to me are the least of my troubles. Why did Ian Brown have to use the pound sign for the pad character facility? Secretaries, especially treasurers, need that pound sign frequently, so please will you publish an amendment to allow it to be printed. – **M.A. Spencer, Bristol.**

● You should be able to print in italic and Elite type styles using the listing as published. Please check lines 790 and 830 carefully. You can alter the pad character by changing the 96 in line 530. Replace it with the Ascii code of a character not often used, dollar perhaps?

BINDERS

Using a system of strengthened steel rods these handsome binders will hold 12 issues of your favourite magazine securely in place. Why rummage through cupboards and book cases for dog-eared back issues when you can keep them safely together in one place?

ONLY £3.95

1990 DTP YEARBOOK

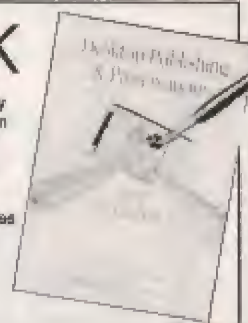
The Desktop Publishing Yearbook 1990 is an invaluable buyer's guide containing the most detailed survey available of hardware, software and services in the electronic publishing field. And there are clearly-written "how-to" articles for both the newcomer to Desktop Publishing and the experienced user.

Articles cover software, laser and other electronic printers, matrix printers, digitisers and scanners, training and forms creation, bureau services, word processors, and many other key topics including the emerging desktop presentations technology.

Whether you're a beginner or professional and would like to find out more about the exciting possibilities of DTP, then this book has all the information you need. Send for your copy today

1990 Yearbook now available

Save over £5 on RRP. Our price including UK postage £14.95



Write your own arcade smashes using the

ARCADE GAME Creator

Arcade Game Creator is a suite of programs for the Electron and BBC Micros. Taken from the pages of *Electron User*, it lets you into the secrets of writing fast-action arcade games, and provides you with a number of utilities to make design and programming easier.

Among the programs are:

- A mode 5 sprite editor that lets you design your own multi-coloured characters
- A selection of fast print routines that will move sprites both in front or behind other objects on the screen.
- Map generators that will squeeze a Mode 5 screen into 8 bytes!
- Scrolling maps.
- Score update and printing routines.
- ... and much, much more.

If you are an aspiring games programmer, this is an offer you simply cannot afford to miss!

Tape + manual.....£9.95



TANK ATTACK

Tank Attack is a computerised board game for two, three or four players, where each one takes the role of a General commanding a country's Tank Corps of one or more armoured divisions.

Your objective is to capture the enemy headquarters, which will require the planned strategic deployment of your forces and regular fire duels between your own and enemy units.

Weather, morale, skill, judgement, planning foresight, careful management of rebuild and repair facilities and luck all play a part in deciding the result of each game.

Tank attack is one of those games you keep coming back to, and at the special offer price of only £19.99 is guaranteed to give you and your friends hours of action-packed excitement.

- Control a full division of tanks and armoured cars
- See all the fighting 'live' on your computer
- Superb board and fully detailed playing pieces
- Real time graphics
- Play as allies or enemies
- Suitable for all ages

RRP £12.99

OUR PRICE

£9.99

DUST COVERS

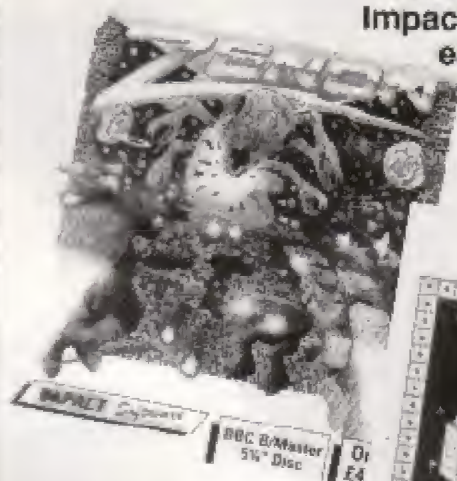
Keep your computer free from dirt and dust with these smart dust covers. Made from rugged PVC, bound with strong cotton and sporting the distinctive Electron User logo, these are the perfect way to protect your micro.

ONLY £4.95

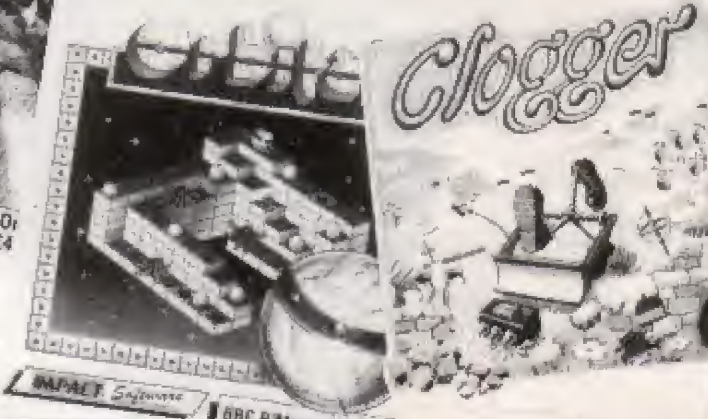
CHEAT IT AGAIN JOE

Just about all the games in your collection can now be cracked – using Cheat It Again Joe! Each tape contains a massive 20 cheats and they're so easy to use. Just load the cheat before you run the game and you're away – with infinite lives, extra speed, more credits, invulnerability and so on. Now you can complete those games that have been frustrating you for months.

Here's your chance to get your hands on Impact's best selling games, for just £4.95 each on cassette. That's right, we are offering Zenon, Clogger and orbital for the incredible price of only £4.95 each



**IMPACT SOFTWARE
AT ONLY £4.95 EACH**



Volume 1	Elite	Beneath
	Clash	Killer Gorilla
	Powerball	Clash
	Thrust	Living Daylight
	Plan B	Deathstar
Volume 2	Region 1	Starship Command
	Region 2	Arcadians
	Star Wars	Knightfall
	Quest	Outpost Rider
	Thunderbolt 2	Phantom
Volume 3	Region 3	Palace of Magic
	Around the World	Isarus
	Life of Reppan	Impact
	Plan B2	Magic Mushrooms
	Godanama Drive	Planoid
Volume 4	Combat Lyrics	Planoid
	Proctory	Progen
	Sargon	Unicorn
	Soyuz	Karate Combat
	Spellbinder	Region 3 passwords
Volume 5	Region Thru Time	Sprite '40
	Shark	Ziggy
	Baraban	The Big KO
	Skirmish	Omega One
	Breakthrough	Future Shock
Volume 6	Arctomy Zone	Savage at Destiny
	Fantasyman 2000	3D Doty
	Psychosis	Melons
	Round Ones	Thunderbolt
	Overdrive	Crespy Cars

Another great electron subscription offer

A subscription to *Electron User* is already excellent value for money. Through your letterbox each month you get a program and feature packed magazine, plus a tape containing all the programs from that issue – with the occasional extra.

And now you get even more for your money because we're giving away a FREE copy of *Barbarian* with every subscription.

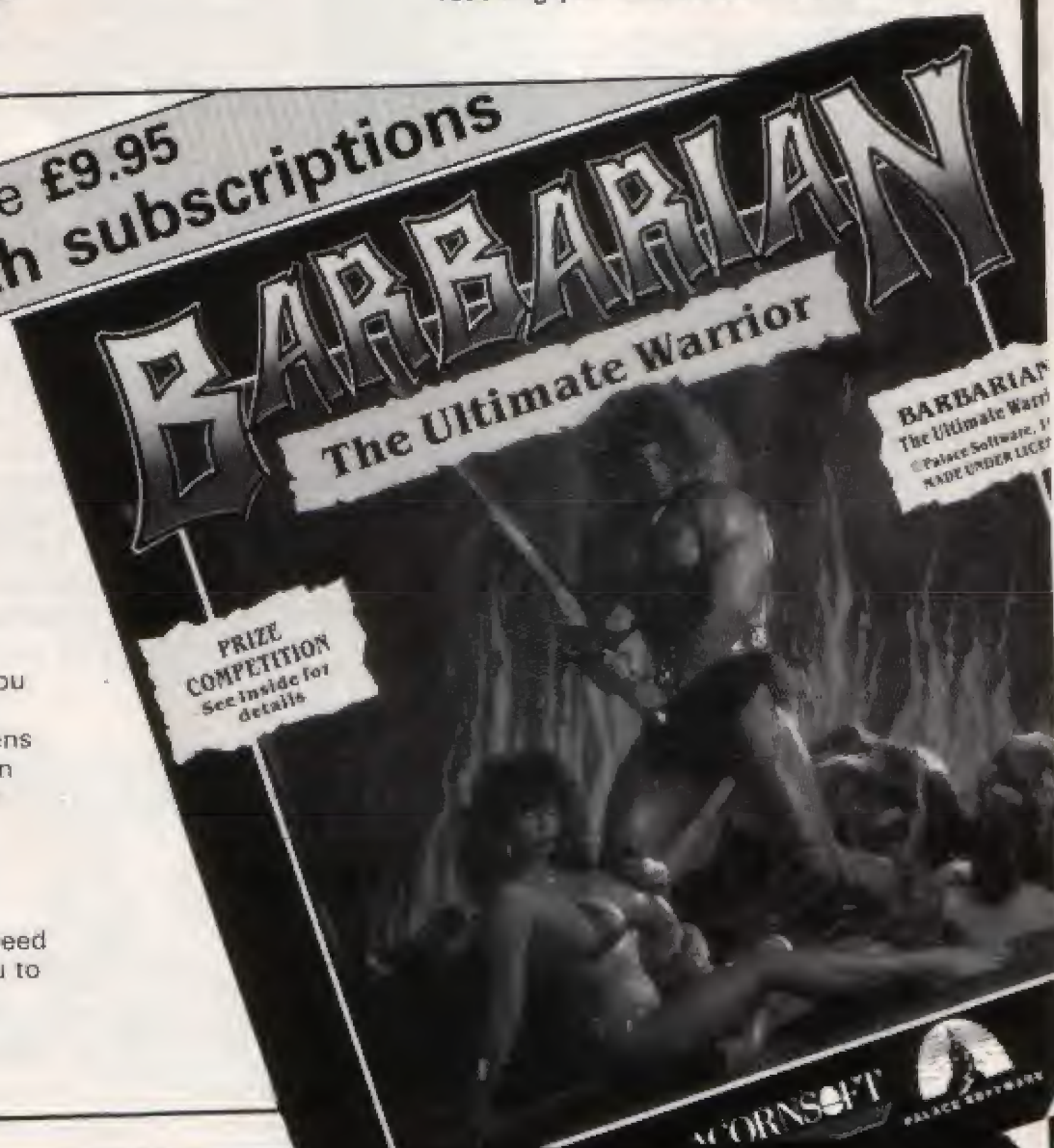
So what are you waiting for? Fill out the order form opposite, send it to us and as soon as the order's processed we'll despatch your copy of *Barbarian*, and you'll start receiving *Electron User* from the next available issue – reaching you well before it's in the shops.

Normal price £9.95
FREE with subscriptions

Barbarian is a fierce game of combat which will tax your skill and reflexes to the limit.

It is a game for one or two players in which you have to hack and slay your way through dozens of punishing screens on your way to saving the beautiful Mariana, abducted by Drax.

But be careful, you'll need all your wits about you to have any chance of success against your dastardly opponent.



Send for your subscription using the form opposite

New Educational Bundle

For a limited period we are offering ALL THREE Fun School 1 AND Nursery Rhymes in a special educational bundle.

FUN SCHOOL!

Ages 2-5

Alphabet
Colours
Counting
House
Magic Garden
Matchmaker
Numbers
Pelican
Seaside
Snap

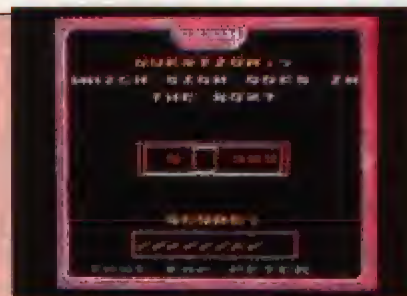


PELICAN

Teach your children to cross the road safely at a Pelican crossing

Ages 5-8

Balance
Castle
Derrick
Fred's Words
Hilo
Maths Test
Mouser
Number Signs
Seawall
Super Spell



NUMBER SIGNS

Provide the correct arithmetic sign and aim to score ten out of ten

- Use your BBC Micro to teach and amuse your children at the same time.
- Three packages crammed full of educational programs – and so easy to use!
- Each program has been educationally approved after extensive testing in the classroom.

RRP £20.80

OUR PRICE
£9.95

Ages 8-12

Anagram
Codebreaker
Dog Duck Corn
Guessing
Hangman
Maths Hike
Nim
Odd Man Out
Pelmanism
Towers of Hanoi



HANGMAN

Improve your child's spelling with this fun version of the popular game

NURSERY RHYMES

5

fun-packed educational programs ... for young children everywhere

This delightful collection of programs is based around children's favourite Nursery Rhymes. There's plenty of sparkling colour, sound and captivating animation to keep them riveted – and as they play they'll be learning all the way.

- ★ Tell the time with Hickory Dickory Dock.
- ★ Assemble the jigsaw in Humpty Dumpty.
- ★ Learn to spell with Jack and Jill.
- ★ Match the animals in See Saw Marjory Daw.
- ★ Play an exciting game in Hey Diddle Diddle.



Send for your collection today using the form on Page 45

FREE 8 PAGE CATALOGUE

Send a stamped addressed envelope for your copy

FREE HELPSHEETS/MAPS

Spend over £4 on games and you may choose ONE of the following helpsheets/solutions and maps absolutely FREE.
Spend over £10 and you may choose any TWO FREE.

Peacocks (4 maps) Village of Lost Souls (1 map) Impact Action (1 map) Impact Action 2 (1 map) Spies (1 map) Spies 2 (1 map) Spies 3 (1 map) Spies 4 (1 map) Spies 5 (1 map) Spies 6 (1 map) Spies 7 (1 map) Spies 8 (1 map) Spies 9 (1 map) Spies 10 (1 map) Spies 11 (1 map) Spies 12 (1 map) Spies 13 (1 map) Spies 14 (1 map) Spies 15 (1 map) Spies 16 (1 map) Spies 17 (1 map) Spies 18 (1 map) Spies 19 (1 map) Spies 20 (1 map) Spies 21 (1 map) Spies 22 (1 map) Spies 23 (1 map) Spies 24 (1 map) Spies 25 (1 map) Spies 26 (1 map) Spies 27 (1 map) Spies 28 (1 map) Spies 29 (1 map) Spies 30 (1 map) Spies 31 (1 map) Spies 32 (1 map) Spies 33 (1 map) Spies 34 (1 map) Spies 35 (1 map) Spies 36 (1 map) Spies 37 (1 map) Spies 38 (1 map) Spies 39 (1 map) Spies 40 (1 map) Spies 41 (1 map) Spies 42 (1 map) Spies 43 (1 map) Spies 44 (1 map) Spies 45 (1 map) Spies 46 (1 map) Spies 47 (1 map) Spies 48 (1 map) Spies 49 (1 map) Spies 50 (1 map) Spies 51 (1 map) Spies 52 (1 map) Spies 53 (1 map) Spies 54 (1 map) Spies 55 (1 map) Spies 56 (1 map) Spies 57 (1 map) Spies 58 (1 map) Spies 59 (1 map) Spies 60 (1 map) Spies 61 (1 map) Spies 62 (1 map) Spies 63 (1 map) Spies 64 (1 map) Spies 65 (1 map) Spies 66 (1 map) Spies 67 (1 map) Spies 68 (1 map) Spies 69 (1 map) Spies 70 (1 map) Spies 71 (1 map) Spies 72 (1 map) Spies 73 (1 map) Spies 74 (1 map) Spies 75 (1 map) Spies 76 (1 map) Spies 77 (1 map) Spies 78 (1 map) Spies 79 (1 map) Spies 80 (1 map) Spies 81 (1 map) Spies 82 (1 map) Spies 83 (1 map) Spies 84 (1 map) Spies 85 (1 map) Spies 86 (1 map) Spies 87 (1 map) Spies 88 (1 map) Spies 89 (1 map) Spies 90 (1 map) Spies 91 (1 map) Spies 92 (1 map) Spies 93 (1 map) Spies 94 (1 map) Spies 95 (1 map) Spies 96 (1 map) Spies 97 (1 map) Spies 98 (1 map) Spies 99 (1 map) Spies 100 (1 map)	Enter 7 (1 map) Enter 8 (1 map) Enter 9 (1 map) Enter 10 (1 map) Enter 11 (1 map) Enter 12 (1 map) Enter 13 (1 map) Enter 14 (1 map) Enter 15 (1 map) Enter 16 (1 map) Enter 17 (1 map) Enter 18 (1 map) Enter 19 (1 map) Enter 20 (1 map) Enter 21 (1 map) Enter 22 (1 map) Enter 23 (1 map) Enter 24 (1 map) Enter 25 (1 map) Enter 26 (1 map) Enter 27 (1 map) Enter 28 (1 map) Enter 29 (1 map) Enter 30 (1 map) Enter 31 (1 map) Enter 32 (1 map) Enter 33 (1 map) Enter 34 (1 map) Enter 35 (1 map) Enter 36 (1 map) Enter 37 (1 map) Enter 38 (1 map) Enter 39 (1 map) Enter 40 (1 map) Enter 41 (1 map) Enter 42 (1 map) Enter 43 (1 map) Enter 44 (1 map) Enter 45 (1 map) Enter 46 (1 map) Enter 47 (1 map) Enter 48 (1 map) Enter 49 (1 map) Enter 50 (1 map) Enter 51 (1 map) Enter 52 (1 map) Enter 53 (1 map) Enter 54 (1 map) Enter 55 (1 map) Enter 56 (1 map) Enter 57 (1 map) Enter 58 (1 map) Enter 59 (1 map) Enter 60 (1 map) Enter 61 (1 map) Enter 62 (1 map) Enter 63 (1 map) Enter 64 (1 map) Enter 65 (1 map) Enter 66 (1 map) Enter 67 (1 map) Enter 68 (1 map) Enter 69 (1 map) Enter 70 (1 map) Enter 71 (1 map) Enter 72 (1 map) Enter 73 (1 map) Enter 74 (1 map) Enter 75 (1 map) Enter 76 (1 map) Enter 77 (1 map) Enter 78 (1 map) Enter 79 (1 map) Enter 80 (1 map) Enter 81 (1 map) Enter 82 (1 map) Enter 83 (1 map) Enter 84 (1 map) Enter 85 (1 map) Enter 86 (1 map) Enter 87 (1 map) Enter 88 (1 map) Enter 89 (1 map) Enter 90 (1 map) Enter 91 (1 map) Enter 92 (1 map) Enter 93 (1 map) Enter 94 (1 map) Enter 95 (1 map) Enter 96 (1 map) Enter 97 (1 map) Enter 98 (1 map) Enter 99 (1 map) Enter 100 (1 map)	Revelation (1 map) Revelation 2 (1 map) Revelation 3 (1 map) Revelation 4 (1 map) Revelation 5 (1 map) Revelation 6 (1 map) Revelation 7 (1 map) Revelation 8 (1 map) Revelation 9 (1 map) Revelation 10 (1 map) Revelation 11 (1 map) Revelation 12 (1 map) Revelation 13 (1 map) Revelation 14 (1 map) Revelation 15 (1 map) Revelation 16 (1 map) Revelation 17 (1 map) Revelation 18 (1 map) Revelation 19 (1 map) Revelation 20 (1 map) Revelation 21 (1 map) Revelation 22 (1 map) Revelation 23 (1 map) Revelation 24 (1 map) Revelation 25 (1 map) Revelation 26 (1 map) Revelation 27 (1 map) Revelation 28 (1 map) Revelation 29 (1 map) Revelation 30 (1 map) Revelation 31 (1 map) Revelation 32 (1 map) Revelation 33 (1 map) Revelation 34 (1 map) Revelation 35 (1 map) Revelation 36 (1 map) Revelation 37 (1 map) Revelation 38 (1 map) Revelation 39 (1 map) Revelation 40 (1 map) Revelation 41 (1 map) Revelation 42 (1 map) Revelation 43 (1 map) Revelation 44 (1 map) Revelation 45 (1 map) Revelation 46 (1 map) Revelation 47 (1 map) Revelation 48 (1 map) Revelation 49 (1 map) Revelation 50 (1 map) Revelation 51 (1 map) Revelation 52 (1 map) Revelation 53 (1 map) Revelation 54 (1 map) Revelation 55 (1 map) Revelation 56 (1 map) Revelation 57 (1 map) Revelation 58 (1 map) Revelation 59 (1 map) Revelation 60 (1 map) Revelation 61 (1 map) Revelation 62 (1 map) Revelation 63 (1 map) Revelation 64 (1 map) Revelation 65 (1 map) Revelation 66 (1 map) Revelation 67 (1 map) Revelation 68 (1 map) Revelation 69 (1 map) Revelation 70 (1 map) Revelation 71 (1 map) Revelation 72 (1 map) Revelation 73 (1 map) Revelation 74 (1 map) Revelation 75 (1 map) Revelation 76 (1 map) Revelation 77 (1 map) Revelation 78 (1 map) Revelation 79 (1 map) Revelation 80 (1 map) Revelation 81 (1 map) Revelation 82 (1 map) Revelation 83 (1 map) Revelation 84 (1 map) Revelation 85 (1 map) Revelation 86 (1 map) Revelation 87 (1 map) Revelation 88 (1 map) Revelation 89 (1 map) Revelation 90 (1 map) Revelation 91 (1 map) Revelation 92 (1 map) Revelation 93 (1 map) Revelation 94 (1 map) Revelation 95 (1 map) Revelation 96 (1 map) Revelation 97 (1 map) Revelation 98 (1 map) Revelation 99 (1 map) Revelation 100 (1 map)
--	--	--

WHITE MAGIC 2 (The Fourth Dimension)

Following the success of the superb White Magic, The Fourth Dimension have now released an easy to use level designer plus 32 new challenging levels. The designer allows you to create infinite numbers of screens and the new levels are harder than the originals for those who are ready for a real challenge.

Prices below.

E-Type (The Fourth Dimension)

3D CAR RACING FOR THE ARCHIMEDES
E-Type has been programmed by the author of Hated Out! It's an incredibly thrilling game allowing you to race a gleaming £70,000 E-Type at speeds over 150mph. Drive through hills, lanes and valleys with varying backdrops. The digitised graphics and sound effects are unbelievable - it's an absolute must.

ARCHIMEDES GAMES

E-Type (The 4th Dimension)	19.95	Avon & Murdoc (Topological)	16.95	Glant Killer (Topological)	16.95
E-Type Designer (The 4th Dimension)	16.95	Achelon (Topological)	18.95	Freddy's Folly (Minerva)	11.95
White Magic (The 4th Dimension)	19.95	Enthalp 7 (Robico)	24.95	Alarion (Dabs Press)	12.95
White Magic 2 (The 4th Dimension)	19.95	Word Up & Word Down (Gem)	16.95	Terramer (Grandstream)	15.95
Hated Out (3D Golf) (4th Dimension)	19.95	Pacmania (Grandstream)	15.95	Hoverbot (Minerva)	11.95
Hated Out Extra Courses Vol 1	16.95	Jet Fighter (Minerva)	11.95	Missile Control (Minerva)	11.95
Hated Out Extra Courses Vol 2	16.95	Corruption (Rainford)	11.95	Thundermonk (Minerva)	11.95
Chest It Again, Archie (Impact)	9.95	Fish (Rainbird)	19.95	Minicour (Minerva)	11.95
Quaker (Impact Software)	9.95	Fireball (Godax)	15.95	Rik The Viking (Minerva)	16.95
Startrader (Gem)	16.95	Orion (Minerva)	11.95	Fugitives Quest (Robico)	25.95
Return to Doom (Topological)	18.95	3D Pool (Firebird)	19.95	Rise in Crime (Robico)	25.95

HOLED OUT EXTRA COURSES

Due to overwhelming public demand The 4th Dimension has now produced 2 volumes of extra courses for their superb 3D golf game Hated Out. Each volume contains 2 specially designed brand new courses plus the original Hated Out program, therefore you do not need the original Hated Out in order to play them.

"I play golf and this game is the closest thing I've seen to the real game on a computer". *Archive, June 1989*

"I wouldn't have thought it possible to get a better simulation out of the box". *BBC Asym User, June 1989*

"The 3D perspective graphics are stunning". *Electron User (GOLDEN GAME) June 89*

"Hated Out is great... The game plays very well and the graphics are superb". *Popular Computing Weekly, March 1989*

"The best golf simulation I've ever seen on any Acorn machine". *The Micro User, June 1989*

"The Electron version is brilliant - it's almost the same as playing at Gonerages. Unreservedly recommended".

A & B Computing (Game of the Month, June 1989)

Prices above and opposite

ARCADE SOCCER (The Fourth Dimension)

A brilliant soccer game of the quality that only The Fourth Dimension could produce. Superb graphics, League System, throw-ins, corners, diving goalies, superfast action and much, much more. It's as near to the real thing as you can get. "HIGHLY RECOMMENDED". You can play against the computer or a friend.

BBC/Electron Cassette £9.95

BBC B/Master 5 1/4" Disc £12.95

Enhanced Archimedes version will be available late October at £19.95

The Art Studio from Impact Software

An ingenious and comprehensive design program from Impact Software allowing you to create superb pictures and save them to cassette or disc. It features a host of easy to use commands such as Zoom, Paint, Fill, Copy etc. to help any budding artist. No pens, chips, mice or other add-ons are required. Just load and go! Keyboard or joystick controls. Works in modes 4 & 5. This must be the best value utility on the market today.

from only £9.95

Prices opposite

U.I.M. (ULTRA INTELLIGENT MACHINE) from The Fourth Dimension

Potentially the most exciting BBC release for a long time, U.I.M. is a massive 3D vector graphic action adventure set in the future. The greenhouse effect has melted the icecaps and all life now exists in hundreds of colonies under the sea. You must travel the oceans, completing missions, trading in currencies, commodities and shares in search of the U.I.M. There are many types of ship you will encounter in your highly manoeuvrable futuristic submarine and you must develop your weaponry and equipment to deal with the challenges you will face. U.I.M. is an opportunity to step into another world. It will fascinate you for weeks and possibly months to come.

U.I.M. is disc only and will run on BBC B or B+ with sideways RAM and Master Series Computers.

Prices below

TITLE & PUBLISHER		BBC B or Electron Cassette	BBC B or Electron 5 1/4" Disc	TITLE & PUBLISHER		BBC B or Electron Cassette	BBC B or Electron 5 1/4" Disc	TITLE & PUBLISHER		BBC B or Electron Cassette	BBC B or Electron 5 1/4" Disc
M = Master Compatible				M = Master Compatible				M = Master Compatible			
IMPACT SOFTWARE (Discs are BBC B or Electron 5 1/4" Disc)				ADVENTURE (Discs are BBC B or Electron 5 1/4" Disc)				PIRECAP (Discs are BBC B or Electron 5 1/4" Disc)			
Impact Action	4.95	10.95		Adventures in Time	4.95			Pirecap	7.95	11.95	10.95
Impact Action 2	4.95	10.95	5.95	Adventures in Space	4.95			Revelation	7.95	11.95	10.95
Impact Action 3	4.95	10.95	5.95	Adventures in Earth	4.95	7.95	11.95	Revelation 2	7.95	11.95	10.95
Impact Action 4	4.95	10.95	5.95	Adventures in Water	4.95	7.95	11.95	Revelation 3	7.95	11.95	10.95
Impact Action 5	4.95	10.95	5.95	Adventures in Air	4.95	7.95	11.95	Revelation 4	7.95	11.95	10.95
Impact Action 6	4.95	10.95	5.95	Adventures in Fire	4.95	7.95	11.95	Revelation 5	7.95	11.95	10.95
Impact Action 7	4.95	10.95	5.95	Adventures in Ice	4.95	7.95	11.95	Revelation 6	7.95	11.95	10.95
Impact Action 8	4.95	10.95	5.95	Adventures in Metal	4.95	7.95	11.95	Revelation 7	7.95	11.95	10.95
Impact Action 9	4.95	10.95	5.95	Adventures in Wood	4.95	7.95	11.95	Revelation 8	7.95	11.95	10.95
Impact Action 10	4.95	10.95	5.95	Adventures in Stone	4.95	7.95	11.95	Revelation 9	7.95	11.95	10.95
Impact Action 11	4.95	10.95	5.95	Adventures in Glass	4.95	7.95	11.95	Revelation 10	7.95	11.95	10.95
Impact Action 12	4.95	10.95	5.95	Adventures in Plastic	4.95	7.95	11.95	Revelation 11	7.95	11.95	10.95
Impact Action 13	4.95	10.95	5.95	Adventures in Rubber	4.95	7.95	11.95	Revelation 12	7.95	11.95	10.95
Impact Action 14	4.95	10.95	5.95	Adventures in Leather	4.95	7.95	11.95	Revelation 13	7.95	11.95	10.95
Impact Action 15	4.95	10.95	5.95	Adventures in Silk	4.95	7.95	11.95	Revelation 14	7.95	11.95	10.95
Impact Action 16	4.95	10.95	5.95	Adventures in Wool	4.95	7.95	11.95	Revelation 15	7.95	11.95	10.95
Impact Action 17	4.95	10.95	5.95	Adventures in Cotton	4.95	7.95	11.95	Revelation 16	7.95	11.95	10.95
Impact Action 18	4.95	10.95	5.95	Adventures in Paper	4.95	7.95	11.95	Revelation 17	7.95	11.95	10.95
Impact Action 19	4.95	10.95	5.95	Adventures in Card	4.95	7.95	11.95	Revelation 18	7.95	11.95	10.95
Impact Action 20	4.95	10.95	5.95	Adventures in Fabric	4.95	7.95	11.95	Revelation 19	7.95	11.95	10.95
Impact Action 21	4.95	10.95	5.95	Adventures in Lace	4.95	7.95	11.95	Revelation 20	7.95	11.95	10.95
Impact Action 22	4.95	10.95	5.95	Adventures in Ribbon	4.95	7.95	11.95	Revelation 21	7.95	11.95	10.95
Impact Action 23	4.95	10.95	5.95	Adventures in Thread	4.95	7.95	11.95	Revelation 22	7.95	11.95	10.95
Impact Action 24	4.95	10.95	5.95	Adventures in Yarn	4.95	7.95	11.95	Revelation 23	7.95	11.95	10.95
Impact Action 25	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 24	7.95	11.95	10.95
Impact Action 26	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 25	7.95	11.95	10.95
Impact Action 27	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 26	7.95	11.95	10.95
Impact Action 28	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 27	7.95	11.95	10.95
Impact Action 29	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 28	7.95	11.95	10.95
Impact Action 30	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 29	7.95	11.95	10.95
Impact Action 31	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 30	7.95	11.95	10.95
Impact Action 32	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 31	7.95	11.95	10.95
Impact Action 33	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 32	7.95	11.95	10.95
Impact Action 34	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 33	7.95	11.95	10.95
Impact Action 35	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 34	7.95	11.95	10.95
Impact Action 36	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 35	7.95	11.95	10.95
Impact Action 37	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 36	7.95	11.95	10.95
Impact Action 38	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 37	7.95	11.95	10.95
Impact Action 39	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 38	7.95	11.95	10.95
Impact Action 40	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 39	7.95	11.95	10.95
Impact Action 41	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 40	7.95	11.95	10.95
Impact Action 42	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 41	7.95	11.95	10.95
Impact Action 43	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 42	7.95	11.95	10.95
Impact Action 44	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 43	7.95	11.95	10.95
Impact Action 45	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 44	7.95	11.95	10.95
Impact Action 46	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 45	7.95	11.95	10.95
Impact Action 47	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 46	7.95	11.95	10.95
Impact Action 48	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 47	7.95	11.95	10.95
Impact Action 49	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 48	7.95	11.95	10.95
Impact Action 50	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 49	7.95	11.95	10.95
Impact Action 51	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 50	7.95	11.95	10.95
Impact Action 52	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 51	7.95	11.95	10.95
Impact Action 53	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 52	7.95	11.95	10.95
Impact Action 54	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 53	7.95	11.95	10.95
Impact Action 55	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 54	7.95	11.95	10.95
Impact Action 56	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 55	7.95	11.95	10.95
Impact Action 57	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 56	7.95	11.95	10.95
Impact Action 58	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 57	7.95	11.95	10.95
Impact Action 59	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 58	7.95	11.95	10.95
Impact Action 60	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 59	7.95	11.95	10.95
Impact Action 61	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 60	7.95	11.95	10.95
Impact Action 62	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 61	7.95	11.95	10.95
Impact Action 63	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 62	7.95	11.95	10.95
Impact Action 64	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 63	7.95	11.95	10.95
Impact Action 65	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 64	7.95	11.95	10.95
Impact Action 66	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 65	7.95	11.95	10.95
Impact Action 67	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 66	7.95	11.95	10.95
Impact Action 68	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 67	7.95	11.95	10.95
Impact Action 69	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 68	7.95	11.95	10.95
Impact Action 70	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 69	7.95	11.95	10.95
Impact Action 71	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 70	7.95	11.95	10.95
Impact Action 72	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 71	7.95	11.95	10.95
Impact Action 73	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 72	7.95	11.95	10.95
Impact Action 74	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 73	7.95	11.95	10.95
Impact Action 75	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 74	7.95	11.95	10.95
Impact Action 76	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 75	7.95	11.95	10.95
Impact Action 77	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 76	7.95	11.95	10.95
Impact Action 78	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 77	7.95	11.95	10.95
Impact Action 79	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 78	7.95	11.95	10.95
Impact Action 80	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 79	7.95	11.95	10.95
Impact Action 81	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 80	7.95	11.95	10.95
Impact Action 82	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 81	7.95	11.95	10.95
Impact Action 83	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 82	7.95	11.95	10.95
Impact Action 84	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 83	7.95	11.95	10.95
Impact Action 85	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 84	7.95	11.95	10.95
Impact Action 86	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 85	7.95	11.95	10.95
Impact Action 87	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 86	7.95	11.95	10.95
Impact Action 88	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 87	7.95	11.95	10.95
Impact Action 89	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 88	7.95	11.95	10.95
Impact Action 90	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 89	7.95	11.95	10.95
Impact Action 91	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 90	7.95	11.95	10.95
Impact Action 92	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 91	7.95	11.95	10.95
Impact Action 93	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 92	7.95	11.95	10.95
Impact Action 94	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 93	7.95	11.95	10.95
Impact Action 95	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 94	7.95	11.95	10.95
Impact Action 96	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 95	7.95	11.95	10.95
Impact Action 97	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 96	7.95	11.95	10.95
Impact Action 98	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 97	7.95	11.95	10.95
Impact Action 99	4.95	10.95	5.95	Adventures in Rope	4.95	7.95	11.95	Revelation 98	7.95	11.95	10.95
Impact Action 100	4.95	10.95	5.95	Adventures in Twine	4.95	7.95	11.95	Revelation 99	7.95	11.95	10.95
Impact Action 101	4.95	10.95	5.95	Adventures in Cord	4.95	7.95	11.95	Revelation 100	7.95	11.95	10.95
Impact Action 10											

SUPERIOR SOCCER



Taking a Corner



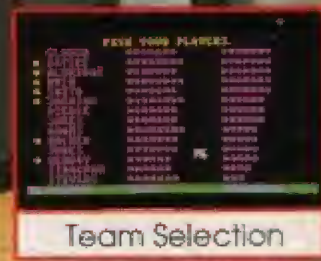
A Shot at Goal



SUPERIOR SOCCER Arcade Soccer & Football Management



Loading Screen



Team Selection

Superior Soccer, the most brilliant soccer game ever for the BBC Micro and Acorn Electron computers, combines the best game-play features of arcade soccer games with the best strategic features of football management games. You can choose to play either the action-packed arcade game or the challenging football management game, or, for the ultimate in football excitement and realism, you can play the combined arcade and management game. So you can choose to be a player, a manager or a player-manager!

ARCADE SOCCER FEATURES

- Heading, passing, dribbling, sliding tackles, corners, throw-ins, goal kicks
- One and two-player options - play against a friend or the computer
- Full pitch scanner shows the positions of all players and the ball
- Control of playing time, game-skill and team colours
- Full on-screen time and score information and game comments

FOOTBALL MANAGEMENT FEATURES

- Four divisions with promotion and relegation
- Full season of games - home and away matches
- Transfers - sell players, and buy if you have the cash
- Choose your team according to strengths and skills
- Build up your finances and success by skill and clever strategy

BBC Micro Cassette £9.95

Acorn Electron Cassette £9.95

BBC Micro 5 1/4" Disc £11.95

BBC Master Compact 3 1/2" Disc £14.95

(Compatible with the BBC B, B+ and Master Series computers)

Please make cheques payable to "Superior Software".

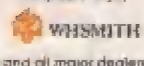
(The screen pictures show the BBC Micro version of the game.)



ACORNSOFT

(Acornsoft is a registered trademark of Acorn Computers Ltd. Superior Software Ltd. is a registered user.)
Dept. SSC1, Regent House, Skinner Lane, Leeds LS7 1AX. Telephone: (0532) 459453

Available from



and all major dealers



24 HOUR TELEPHONE
ANSWERING SERVICE FOR ORDERS

OUR GUARANTEE

- All mail orders are despatched within 24 hours by first-class post.
- Postage and packing is free.
- Faulty cassettes and discs will be replaced immediately (this does not affect your statutory rights).